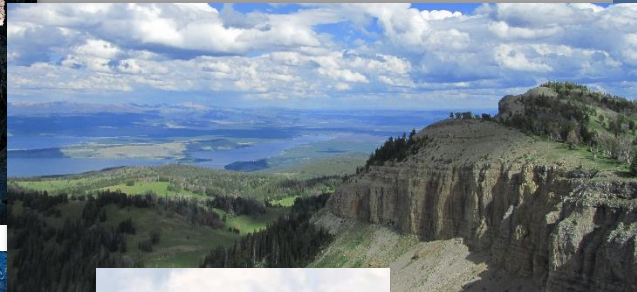
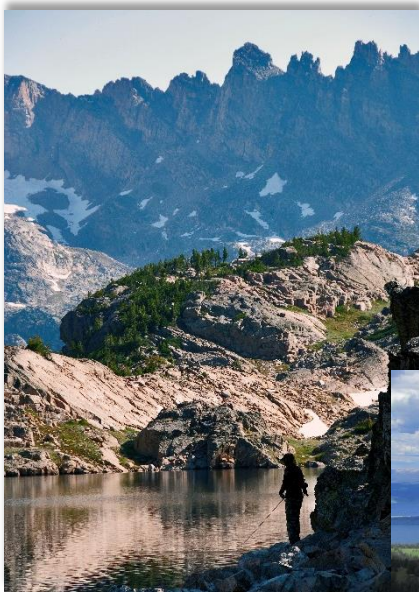




United States Department of Agriculture

# Proposed Action—Revised Forest Plan, Custer Gallatin National Forest



Forest Service  
January 2018

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# Chapter 1. Introduction

## Custer Gallatin National Forest

The Custer Gallatin National Forest encompasses over 3 million acres in southern Montana and the northwest corner of South Dakota. Stretching over 400 miles from its westernmost to its easternmost boundaries, the Custer Gallatin is the most ecologically, socially, economically, and culturally diverse national forest in the Forest Service’s Northern Region.

The Custer Gallatin National Forest consists of two individual proclaimed national forests: the Custer National Forest and the Gallatin National Forest. In 2014 the two Forests were combined to be administratively managed as one national forest. For ease of discussion throughout this document, the Custer Gallatin National Forest will also be referred to as the *Custer Gallatin* or *Forest* when referencing the single administrative unit, the staff that administers the unit, or the national forest lands within the unit. The consolidated Forest continues to operate with the Forest Plans developed for each Forest in the 1980s.

The Custer Gallatin is administered in seven ranger districts, with offices located in Camp Crook, South Dakota, and in Ashland, Red Lodge, Livingston, Gardiner, Bozeman, and West Yellowstone, Montana. The supervisor’s office is located in Bozeman, and an office is located in Billings, Montana. For planning purposes, the Forest Plan arranges the Forest into the six geographic areas displayed in Figure 1-1.

## Need for Change

The Custer Gallatin currently operates with the two Forest Plans developed for each Forest in the 1980s. The “need for change” identifies needs to change management direction in the 1986 Custer Forest Plan and the 1987 Gallatin Forest Plan. It helps define the proposed action, purpose and need, and decision framework for the environmental analysis related to the forest plan revision process. The need to change establishes the framework for development of plan components and other plan content, including the monitoring program.

In the 30 years since the current Forest Plans were developed, (1) the two national forests have been combined administratively to be managed as a single Forest, (2) new Forest Service planning regulations have been adopted, (3) other new laws and policies have been adopted, (4) demographics have shifted, and (5) new threats have emerged which are not addressed in the current plans. The need to change the current plans is therefore largely related to the four broad categories described below. Taken together, the changes related to these four categories will result in substantial changes to the current plans. The Preliminary Need to Change the Existing Custer and Gallatin Forest Plans (February 2017) describes each category, with examples, in more detail.

- Create one, unified forest plan for the Custer Gallatin National Forest;
- Address gaps in current plan direction;
- Comply with the 2012 Planning Rule and associated directives; and
- Reflect new laws, policy, regulation, and Forest Service direction adopted since 1986.

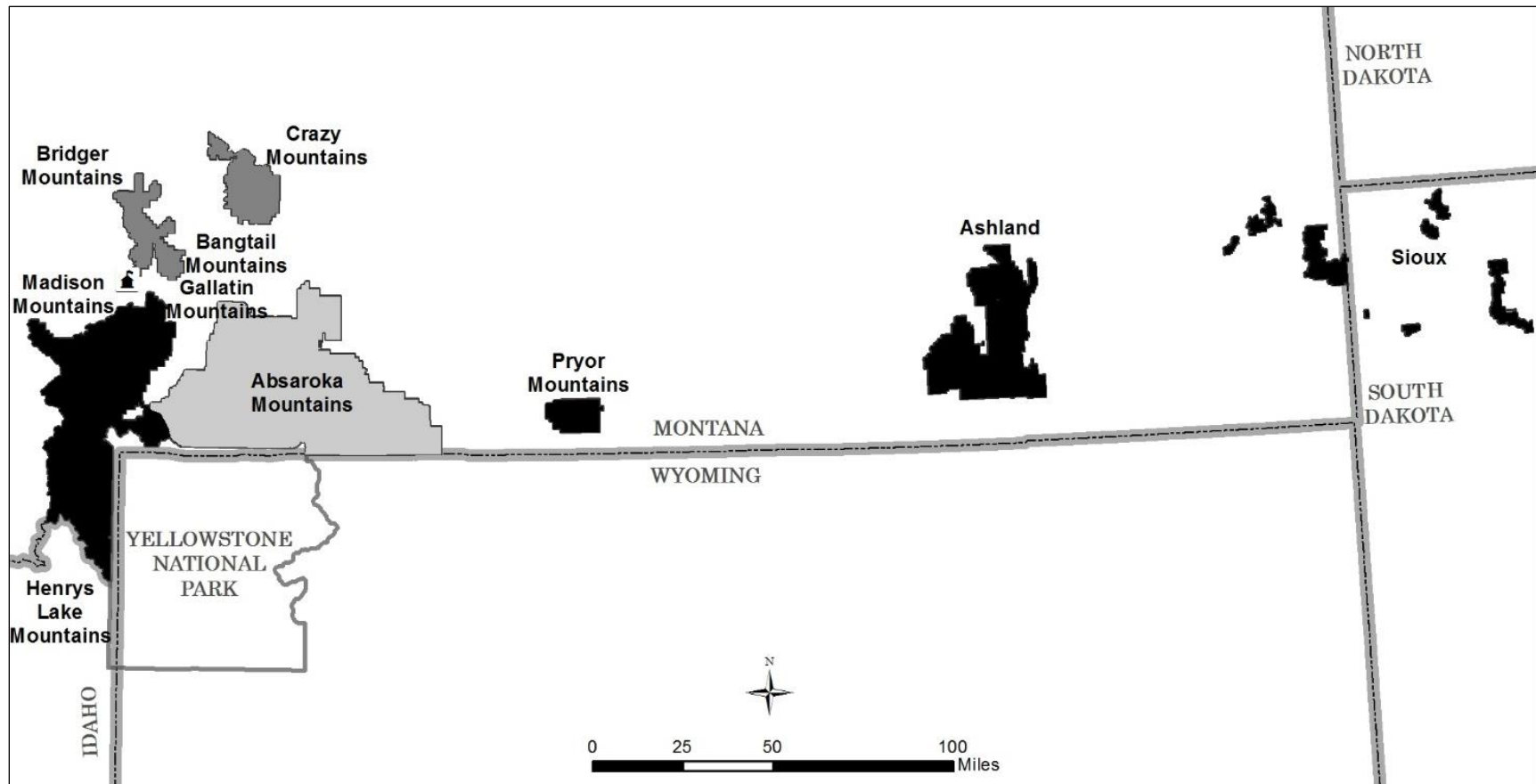


Figure 1-1. Custer Gallatin National Forest and vicinity

## Proposed Action

The Custer Gallatin National Forest is proposing to revise its land and resource management plans (“forest plan” or “land management plan” or “land and resource management plan”). This document describes the proposed action—the proposal for changes to the current land management plans. The proposed action includes:

- Forestwide and geographic area desired conditions, goals, objectives, standards, and guidelines;
- The suitability of lands for specific multiple uses, including those lands suitable for timber production;
- An estimate of the long-term sustained yield and projected timber sale quantity;
- A description of the Forest’s distinctive roles and contributions within the broader landscape;
- The identification of priority restoration watersheds;
- Proposed management actions and strategies that may occur on the Forest over the life of the plan;
- Areas proposed to be recommended to Congress for inclusion in the National Wilderness Preservation System;
- Rivers identified as eligible for inclusion as part of the National Wild and Scenic River System; and
- The plan monitoring program.

## Public and Tribal Involvement

The Custer Gallatin Forest Plan revision effort was publicly launched in January 2016. Public participation activities began prior to the development of the Assessment of Existing Conditions, a precursor document in the plan revision process. Four rounds of public meetings with associated webinars were held prior to release of the proposed action and helped inform its development.

The first set of meetings in early 2016 provided an understanding of what forest plan revision is and why it matters, and an opportunity to gather local knowledge and information, current trends, conditions, perceptions and concerns. A second set of meetings during the summer of 2016 shared information about results to date on the assessment process and early ideas of the need to change the existing forest plans. These meetings also provided a forum for people to share what they care about and what they want to see from the Custer Gallatin National Forest. The third set of public meetings early in 2017 focused on the distinctive roles and contributions of the Custer Gallatin and on developing desired conditions. A fourth set of meetings during the fall of 2017 gathered the public’s ideas on early plan components. In summer 2017, public feedback was requested on the draft eligible Wild and Scenic Rivers and the Wilderness Inventory. Webinars provided an overview of both of these processes.

The Custer Gallatin staff contacted 16 American Indian Tribes to gauge interest and issues for the forest plan revision. The Forest established an “Intergovernmental Working Group” for city, county, state, Federal, and Tribal representatives. Webinars are held several times a year and focus on current planning topics. District rangers periodically brief county commissioners at county commission meetings. Forest planners brief the Custer Gallatin Working Group at its monthly meetings and have met as requested with individuals and interest groups.

## Purpose of this Land Management Plan

The purpose of the Custer Gallatin National Forest Land and Resource Management Plan (hereinafter referred to as *forest plan* or *land management plan*) is to have an integrated set of plan direction (hereinafter referred to as *components*) to provide for social, economic, and ecological sustainability and multiple uses of the Custer Gallatin National Forest lands and resources. This Forest Plan sets the overall context for informed decision making by evaluating and integrating social, economic, and ecological considerations relevant to management of the Forest. In May of 2012 the Forest Service began using new planning regulations (2012 Planning Rule) to guide collaborative and science-based revision of land management plans that promote the ecological integrity of national forests while considering social and economic sustainability. The 2012 Planning Rule specifies the following eight primary decisions that are to be made in forest plans:

- Forestwide components to provide for integrated social, economic, and ecological sustainability, and ecosystem integrity and diversity, while providing for ecosystem services and multiple uses. Components must be within Forest Service authority and consistent with the inherent capability of the Forest (36 Code of Federal Regulations 219.7 and §§219.8–219.10).
- Recommendations to Congress (if any) for lands suitable for inclusion in the National Wilderness Preservation System and/or rivers eligible for inclusion in the National Wild and Scenic Rivers System (36 Code of Federal Regulations 219.7(c)(2)(v) and (vi)).
- Identification or recommendation (if any) of other designated areas (36 Code of Federal Regulations 219.7(c)(2)(vii)).
- Identification of suitability of areas for the appropriate integration of resource management and uses, including lands suited and not suited for timber production (36 Code of Federal Regulations 219.7(c)(2)(vii) and 219.11).
- Identification of the maximum quantity of timber that may be removed from the Forest (36 Code of Federal Regulations 219.7(c)(2)(ix) and 219.11 (d)(6)).
- Identification of geographic area or management area specific components (36 Code of Federal Regulations 219.7(d)).
- Identification of watersheds that are a priority for maintenance or restoration (36 Code of Federal Regulations 219.7(f)(i)).
- Plan monitoring program (36 Code of Federal Regulations 219.7 (c)(2)(x) and 219.12).

It is important to note that this plan does not authorize site-specific prohibitions or activities; rather it establishes broad direction, similar to zoning in a community. Project or activity decisions will need to be made following appropriate procedures. Site-specific analysis in compliance with the National Environmental Policy Act (NEPA) would need to be conducted in order for activities to be in compliance with the broader direction of the forest plan. The revised plan will provide guidance for project and activity-level decision making on the Forest for the next 10 to 15 or more years.

## Plan Structure

This proposed plan is designed to communicate the concepts of strategic guidance and adaptive management for the Custer Gallatin. The proposed plan is organized as follows:

**Chapter 1** describes the purpose of the land management plan, public involvement, plan content, future project consistency with the plan, rights and interests, and how best available science will be considered.

**Chapter 2** contains the proposed Forestwide plan direction; the plan components related to physical and biological ecosystems; the economic, cultural and social environment; and human uses and designations of the forest.

**Chapter 3** contains the proposed geographic area (GA) plan direction and distinctive roles and contributions of each geographic area. Plan components specified at the geographic area level are those that are not adequately addressed by Forestwide plan components. The Custer Gallatin NF is divided into six geographic areas.

**Chapter 4** contains a proposed monitoring program.

Following chapter 4 is a glossary of terms; appendices appear separately as follows:

- Appendix A: Potential Management Approaches and Possible Actions
- Appendix B: Maps
- Appendix C: Priority Watersheds
- Appendix D: Evaluation of Wilderness Inventory Areas
- Appendix E: Wild and Scenic Rivers Eligibility Study Process
- Appendix F: Vegetation
- Appendix G: Northern Rockies Lynx Management Direction, Record of Decision

## Plan Content

The plan includes information on priority watersheds, distinctive roles and contributions of the Forest, monitoring, proposed and possible actions, and plan components.

### Distinctive Roles and Contributions within the Broader Landscape

The description of the Custer Gallatin's distinctive roles and contributions within the broader landscape reflects those things that are truly unique and distinctive (36 Code of Federal Regulations 219.2(b)). This description is important because it is a source of motivation or reasons behind desired conditions. It is important to have an understanding of the ecological, social/economic, and cultural/historic context of the Custer Gallatin National Forest in order to better gauge the relative importance of each role. The National Forest System lands are also referred to as the "plan area."

The Custer Gallatin encompasses over 3 million acres in southern Montana and the northwest corner of South Dakota (see Figure 1-1). Stretching over 400 miles from its westernmost to its easternmost boundaries, the Custer Gallatin is the most ecologically, socially, economically and culturally diverse national forest in the Forest Service's Northern Region.

For planning purposes, the Forest Plan arranges the Forest into six geographic areas, extending from the Montana-Idaho border near the tristate corner of Idaho, Montana, and Wyoming, across southern Montana and into western South Dakota. Each of the six geographic areas has its own set of distinctive roles and contributions as described in chapter 3. The following distinctive roles and contributions were derived from public input and Forest Plan assessment reports.

### Ecological Characteristics

The Forest is made up of a series of distinctive landscapes and "island" mountain ranges and is characterized by the topographical transition between western mountainous terrains and eastern pine

savannas. The elevation ranges from about 3,300 feet on lower elevations of the Pine Savanna Geographic Areas to over 12,000 feet on mountain peaks in the Beartooth Mountains, where Granite Peak, Montana’s highest peak, is located.

The Custer Gallatin has ten research natural areas that are part of a national network of ecological areas for research, education, and maintenance of biological diversity. The Custer Gallatin is home to two special interest areas, created to protect or enhance unique or special resources. Three National Natural Landmarks recognize the country’s best examples of ecological and geological features.

### *Ecoregion*

The Custer Gallatin is located within two distinct ecoregions: the Middle Rockies Ecoregion and the Northwestern Great Plains Ecoregion, and touches on a third ecoregion, the Wyoming Basin Ecoregion. Ecoregions are large ecological zones covering millions of acres distinguished by common climatic and vegetation characteristics. Approximately 81 percent of the Custer Gallatin is in the Middle Rockies Ecoregion. This ecoregion is located mostly in southwestern Montana, eastern Idaho, and northern Wyoming, as well as island mountain ranges in Wyoming and South Dakota. The severe, mid-latitude, humid continental climate is marked by warm to cool summers and severe winters. The mean annual temperature varies greatly by elevation and high elevations are more subarctic. Vegetation consists of coniferous forest, alpine meadow, and shrubland-grassland steppe.

Approximately 19 percent of the Custer Gallatin is in the Northwestern Great Plains Ecoregion consisting of Ponderosa Pine-Shrubland-Grassland Steppe. This ecoregion encompasses the Missouri Plateau section of the Great Plains in southeastern Montana, northeastern Wyoming, and the western portion of the Dakotas. The dry mid-latitude steppe climate is marked by hot summers and cold winters. The region is an unglaciated, rolling plain of shale and sandstone punctuated by occasional buttes.

The Middle Rockies, Northwestern Great Plains, and Wyoming Basin Ecoregions converge at the southwestern part of the Pryor Mountains. A small amount of the Custer Gallatin (less than 1 percent) is in the Wyoming Basin Ecoregion around the Pryor Mountains and consists of Semi-Desert Shrubland-Grassland.

The Custer Gallatin is inhabited by hundreds of species of native mammals, birds, fish, reptiles, amphibians, and invertebrates. The diverse ecology and geographic span of the Forest contributes to the diversity of wildlife species. Wildlife habitat on the Custer Gallatin is extremely diverse, ranging from southwest Montana’s rugged mountain peaks to the pine forests, buttes and bluffs of the Pine Savanna Ecosystem in South Dakota and eastern Montana.

### *Montane-Pine Savanna*

The Custer Gallatin has termed its mountainous Middle Rockies Ecoregion area as Montane and the Northwestern Great Plains Ecoregion area as Pine Savanna. Montane ecosystems of the Custer Gallatin include the Madison, Henrys Lake, Gallatin, Bridger, Bangtail, Crazy, Absaroka, Beartooth, and Pryor mountain ranges. The Pine Savanna Ecosystem includes the Ashland and Sioux Ranger Districts.

**Pine Savanna.** The Pine Savanna Ecosystem is characterized by rolling plains and tablelands of moderate relief. The Ashland and Sioux Districts stand out from the surrounding plains because of their elevation and the presence of ponderosa pines. The area lies in the rain shadow east of the Rocky Mountains. The climate is a semiarid continental regime. Winters are cold and dry, and summers are warm to hot. Evaporation usually exceeds precipitation, and the total supply of moisture is low. Vegetation consisting of sparsely distributed short bunchgrasses, scattered trees, and shrubs, are supported in all gradations of cover, from semi desert to woodland. Many species of grasses and forbs grow in this area. On the driest sites ponderosa pine is short and generally open, grown with grass understories. Moist north-facing sites

have dense stands of taller ponderosa pine, with shrub and herbaceous understories, including species of the mountain forests to the west. Draws and gullies (ravines) that support many hardwood trees (green ash, box elder, aspen) and shrubs also dissect the landscape. Grasses include blue grama, wheatgrass, and needlegrass. Shrubs include sagebrush, chokecherry, and snowberry.

The Ashland District drains to the Tongue and Powder Rivers, tributaries to the lower Yellowstone River. Otter Creek, a tributary of the Tongue River, bisects the Ashland District. Most of the Sioux District drains to the Little Missouri, Grande, or Moreau Rivers, tributaries to the Missouri River. Streams on the national forest are typically seasonal.

**Montane.** The montane ecosystem is characterized by glaciated regions ranging with altitudinal zonation of semidesert vegetation, coniferous forests on the lower mountain slopes, and alpine tundra toward the upper. Temperature and snowfall vary greatly with altitude. Winds are from the west/southwest, with much of their moisture precipitated where they cross the Pacific ranges. Due to aridity, forests are sometimes restricted to northern and eastern slopes. Although south- and west-facing slopes receive comparable precipitation, they are hotter and evaporation is higher. Consequently, they support fewer trees and are covered by shrubs and grasses. Lodgepole pine, Douglas-fir, subalpine fir, Engelmann spruce, limber pine, and whitebark pine are the predominant conifer vegetation. The lower slopes of the mountains are dominated by grasslands and shrublands.

Tributaries to the upper Missouri River originate in these mountains, including the Madison, Gallatin, and Yellowstone Rivers. These rivers and other streams hold westslope cutthroat trout, Arctic grayling, and important conservation populations of Yellowstone cutthroat trout.

The Montane Ecosystem, except the Pryor Mountains, also encompasses the Custer Gallatin's portion of the Greater Yellowstone Area. Native animals, including grizzly bears, gray wolves, and bison, roam the Madison, Henrys Lake, Gallatin, Bridger, Bangtail, Crazy, Absaroka, and Beartooth Mountains. Whitebark pine, a candidate species for Federal listing under the Endangered Species Act, is found at higher elevations. Whitebark pine in the Greater Yellowstone Area exhibits lower blister rust infection than other ecosystems, such as the Northern Continental Divide.

### Social and Economic Characteristics

The Custer Gallatin has a history of multiple, co-existing uses, including timber, grazing, mining, hunting, fishing, and recreation. The national forest contributes to a variety of economic enterprises including ranches, outfitters and guides, destination ski and recreation areas, large mines, gateway resort and agricultural communities. Given proximity to Yellowstone National Park and renowned attractions such as the Beartooth Highway and Big Sky Ski Resort, the national forest is part of an international destination.

The Custer Gallatin National Forest contributes to local and regional economies by providing important natural resources including timber and forest products, livestock forage, fish and wildlife, and minerals that meet local and national needs. Wood from across the Forest supplies the regional forest products industry, as well as individual and community uses such as firewood and Christmas trees. The Ashland and Sioux Ranger Districts manage two of the largest national forest livestock grazing programs. The Stillwater Complex is the only primary producer of platinum and palladium in the United States, and one of only three such producers in the world. In addition to timber, range, and minerals, popular species and biological diversity on the Forest contributes to the economic sustainability of communities through ecotourism, wildlife viewing, and hunting and fishing.

The Custer Gallatin provides a wide range of recreation opportunities. Year-round opportunities range from highly developed sites to more primitive and dispersed recreation opportunities. The Custer



Gallatin is renowned for hunting, fishing, and wildlife watching. Unique developed recreation opportunities include cabin and lookout rentals, regionally significant ski areas, rock and ice climbing, and a visitor center that focuses on the 1959 earthquake that formed Earthquake Lake. Recreation opportunities include a network of motorized and nonmotorized roads and trails. Winter recreation includes extensive trail networks for snowmobiling, cross country and downhill skiing, and snowshoeing. Outfitter and guides provide additional access to unique backcountry, hunting, and floating opportunities along the Yellowstone and Gallatin Rivers. The Forest’s recreation program contributes to the economic sustainability of local communities.

The Forest contains over 1 million acres of designated wilderness including portions of the Lee Metcalf and Absaroka-Beartooth Wilderness Areas. Approximately 847,000 acres of the Forest are allocated as inventoried roadless areas. Congress also designated portions of the inventoried roadless areas as the 155,000-acre Hyalite Porcupine Buffalo Horn Wilderness Study Area, and the 37,000 acre Cabin Creek Wildlife and Recreation Area. These allocations provide for vast landscapes that allow for more primitive recreation experiences. The existence of these primitive landscapes may provide for inspiration and meaning to those who value wild places, even if they never go there.

The Custer Gallatin provides abundant water for agriculture and other downstream uses as well as three municipal watersheds and water sources: Bozeman, Hyalite and Lyman Creeks (Bozeman), West Fork Rock Creek (Red Lodge) and Whiskey Spring (West Yellowstone).

## Cultural and Historical Characteristics

Scattered throughout the Custer Gallatin’s pine savannas, forests, mountains, and valleys are more cultural resource sites than any other national forest in the Forest Service’s Northern Region. More than 10,000 years of human history is represented. Historically, the Forest was the ancestral homeland and travel way of native people now referred to as the Crow, Northern Cheyenne, Sioux, Eastern Shoshone, Northern Arapahoe, Shoshone-Bannock, Nez Perce, Salish and Kootenai. Native American use of the Forest over the centuries is manifest in hundreds of archaeological, sacred sites, and other areas of traditional cultural importance, many of which are listed or eligible to be on the National Register of Historic Places. Significant spiritual, traditional use, and ceremonial sites are in use today by Tribal members.

The Custer Gallatin’s cultural resources represent a wide variety of cultural and historical themes, including Native American use, Tribal-U.S. Government conflict, mining, agricultural development, ranching, timber, transportation, homesteads, local settlement, fire detection, recreation, Civilian Conservation Corps projects, and Forest Service administrative history. The eastern districts contain some of the most varied and complete cultural resources in the northern Great Plains.

## Plan Components

### Introduction

Plan components guide future projects and activities and the plan monitoring program. Plan components are not commitments or final decisions approving projects or activities.

Every plan must identify where plan direction applies. Plan direction may apply Forestwide, to management areas, and/or to geographic areas. This proposed plan presents two types of components:

- Forestwide components that apply across the landscape, but may be applicable to specific areas as designated on a map; and

- Geographic area components that are specific to an area or place, such as a river basin or valley, and reflect values and local conditions within that specific geographic area. The geographic areas may also have directions that applies to specific areas as designated on a map.

Forestwide components would apply to all national forest land, unless otherwise stated under direction for geographic areas. The Forestwide components would apply to the geographic areas unless other direction is noted within the geographic area section. If so noted, this direction may supplement or supersede what is stated in the Forestwide section. If no mention is made to a particular resource component in the geographic area section, then the Forestwide direction is to be followed. The geographic area components allow us to focus on specific circumstances in specific geographic locations.

The Forestwide and geographic area components would apply to the designated areas and special emphasis areas. If so noted, the designated area and special emphasis area direction may supplement or supersede what is stated in the Forestwide section or geographic area direction.

Desired conditions, goals, objectives, standards, guidelines, monitoring questions, and monitoring indicators (in appendix A) have been given alpha-numeric identifiers for ease in referencing within the Forest Plan. The identifiers include:

- The level of direction (Forestwide = FW, for geographic area direction the geographic area abbreviation is used)
- The type of direction (where DC = desired condition, GO = goal, OBJ = objective, STD = standard, GDL = guideline, SUIT = suitability, MON=monitoring question, IND=monitoring indicator)
- The resource (for example, WTR = watersheds and VEG = vegetation)
- A unique number (a numerical order starting with “01”)

For example, Forestwide direction for desired conditions associated with watersheds would be identified starting with FW-DC-WTR-01. The desired conditions for the Absaroka Beartooth Geographic Area would be identified starting with AB-DC-WTR-01. The identifiers are included as part of the headings in chapters 2 and 3 with the unique number preceding each plan component.

Following are the definitions, and where necessary, a description of their context for the required plan components (36 Code of Federal Regulations 219.7(e)).

### Desired Conditions

A desired condition (DC) is a description of specific social, economic, and/or ecological characteristics of the Forest, or a portion of the Forest, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but not include completion dates (36 Code of Federal Regulations 219.7(e)(1)(i)).

Desired conditions are not commitments or final decisions approving projects and activities. The desired condition for some resources may currently exist, or for other resources may only be achievable over a long time period.

### Goals

A plan may include goals (GO) as plan components. Goals are broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Goals are expressed in broad, general terms, but do not include completion dates (36 Code of Federal Regulations 219.7(e)(2)). Goals may be appropriate to describe a state between current conditions and desired conditions, but

without specific amounts of indicators. Goals may also be appropriate to describe overall desired conditions of the Forest that are also dependent on conditions beyond the Forest or Forest Service authority.

## Objectives

An objective (OBJ) is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets (36 Code of Federal Regulations 219.7(e)(1)(ii)). Objectives describe the focus of management on the Forest within the plan period. Objectives will occur over the life of the Forest Plan, considered to be over the first 15 years of plan implementation, unless otherwise specified. As with desired conditions, objectives can be Forestwide or specific to geographic areas.

It is important to recognize that objectives were developed considering historic and expected budget allocations, as well as professional experience with implementing various resource programs and activities. It is possible that objectives could either exceed or not meet a target based upon a number of factors including budget and staffing increases/decreases, increased/decreased planning efficiencies, unanticipated resource constraints, etc.

## Standards

A standard (STD) is a mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 Code of Federal Regulations 219.7(e)(1)(iii)). As with desired conditions, standards can be developed for Forestwide application or specific to a geographic area.

## Guidelines

A guideline (GDL) is a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 Code of Federal Regulations 219.7(e)(1)(iv)). As with desired conditions, guidelines can be Forestwide or specific to a geographic area.

## Suitability of Lands

Specific lands within the Forest will be identified as suitable (SUIT) for various multiple uses or activities based on the desired conditions applicable to those lands. The plan will also identify lands within the Forest as not suitable for uses that are not compatible with desired conditions for those lands. The suitability of lands need not be identified for every use or activity (36 Code of Federal Regulations 219.7(e)(1)(v)). Suitability identifications may be made after consideration of historic uses and of issues that have arisen in the planning process.

Identifying suitability of lands for a use in the Forest Plan indicates that the use may be appropriate, but does not make a specific commitment to authorize that use. Final suitability determinations for specific authorizations occur at the project- or activity-level decision making process. Generally, the lands on the Forest are suitable for all uses and management activities appropriate for national forests, such as outdoor recreation, grazing, or timber harvest, unless identified as not suitable. Every plan must identify those lands that are not suitable for timber production (§ 219.11) (36 Code of Federal Regulations 219.7(e)(1)(v)). For Forestwide suitability determinations, see chapter 2; for geographic area-specific suitability determinations, see chapter 3.

## Plan Monitoring Program

The monitoring program is designed to test assumptions used in developing plan components and to evaluate relevant changes and management effectiveness of the plan components. Typically, monitoring questions seek additional information to increase knowledge and understanding of changing conditions, uncertainties, and risks identified in the best available scientific information as part of an adaptive management framework. Best available scientific information can identify indicators that address associated monitoring questions. The best available scientific information is also important in the further development of the monitoring program as it may help identify protocols and specific methods for the collection and evaluation of monitoring information (from Forest Service Handbook 1909.12 07.11). See chapter 4 for the monitoring program.

## Priority Watersheds

The Planning Rule requires land management plans to identify watershed(s) that are a priority for maintenance or restoration (36 Code of Federal Regulations 219.7(f)(1)). Identification of these watersheds is to focus efforts on the integrated restoration of watershed conditions in these areas. Information about priority watersheds on the Forest can be found in appendix C.

## Proposed and Possible Actions

The 2012 Planning Rule requires land management plans to “...contain information reflecting proposed and possible actions that may occur on the Forest during the life of the plan, including: the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used (16 United States Code 1604(e)(2) and (f)(2)). Such information is not a commitment to take any action and is not a ‘proposal’ as defined by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 Code of Federal Regulations 1508.23, 42 U.S.C. 4322(2)(C)). (36 Code of Federal Regulations 219.7(f)(1)).” Management approaches and strategies presented in this section may include suggestions for on-the-ground implementation, analysis, assessment, inventory or monitoring, and partnership and coordination opportunities the Forest is proposing as helpful to make progress in achieving its desired conditions. The potential approaches and strategies are not intended to be all-inclusive, nor commitments to perform particular actions.

The possible actions and potential management approaches and strategies the Custer Gallatin may undertake to make progress in achieving the desired conditions described in this plan can be found in appendix A.

## Project and Activity Consistency with the Plan

As required by the National Forest Management Act of 1976, subject to valid existing rights, all projects and activities that would be authorized by the Forest Service, after the record of the decision for the revised plan, must be consistent with the forest plan (16 United States Code 1604 (i)) as described at 36 Code of Federal Regulations 219.15. This is accomplished by a project or activity being consistent with applicable plan components.

When a proposed project or activity would not be consistent with the applicable plan components, the responsible official shall take one of the following steps, subject to valid existing rights:

- Modify the proposed project or activity to make it consistent with the applicable plan components.
- Reject the proposal or terminate the project or activity.

- Amend the plan so that the project or activity will be consistent with the plan as amended.
- Amend the plan contemporaneously with the approval of the project or activity so that the project or activity will be consistent with the plan as amended (36 Code of Federal Regulations 219.15(c)).

## Determining Consistency

Because of the many types of projects and activities that can occur over the life of the plan, it is not likely that a project or activity can maintain or contribute to the attainment of all desired conditions, nor are all desired conditions relevant to every activity (for example, recreation desired conditions may not be relevant to a fuels treatment project). Most projects and activities are developed specifically to maintain or move conditions toward one or more of the desired conditions of the plan.

Every project and activity must be consistent with the applicable plan components. A project or activity approval document must describe how the project or activity is consistent with applicable plan components by meeting the following criteria (36 Code of Federal Regulations 219.15(d)):

1. **Goals, desired conditions, and objectives.** The project or activity contributes to the maintenance or attainment of one or more goals, desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any goals, desired conditions, or objectives, over the long term.
2. **Standards.** The project or activity complies with applicable standards.
3. **Guidelines.** The project or activity:
  - i. Complies with applicable guidelines as set out in the plan; or
  - ii. Is designed in a way that is as effective in achieving the purpose of the applicable guidelines (§ 219.7(e)(1)(iv)).
4. **Suitability.** A project or activity would occur in an area:
  - i. That the plan identifies as suitable for that type of project or activity; or
  - ii. For which the plan is silent with respect to its suitability for that type of project or activity.

## Relationship to Other Strategic Guidance

The Forest contributes to the accomplishment of national strategic guidance in accordance with its own unique combination of social, economic, and ecologic conditions. This Forest Plan helps define the Forest's role in advancing the agency's national strategy and reflects the national goals. This Forest Plan is reflective of the mission of the Forest Service, which is "to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations." The Forest Plan also incorporates the direction and goals in other applicable Tribal, Federal, State, and county plans and an "all lands" integrated approach that considers the broader landscape that the plan operates within.

## Rights and Interests

The revised Forest Plan will provide a strategic framework that guides future management decisions and actions, subject to valid existing rights. As such, the plan will not create, authorize, or execute any

ground-disturbing activity. The plan will not subject anyone to civil or criminal liability and will create no legal rights. The plan will not change existing permits and authorized uses.

## Best Available Science and the Proposed Action

The 2012 Planning Rule requires the responsible official to use the best available scientific information to inform the development of the proposed plan, including plan components, the monitoring program, and plan decisions. The foundation from which the plan components were developed for the proposed action was provided by the Assessment Report of Ecological, Social and Economic Conditions on the Custer Gallatin National Forest (February 2017) and associated resource reports, and the best available scientific information and analyses therein. From this foundation, resource specialists used a number of resources that included peer-reviewed and technical literature, databases and data management systems, and modeling tools and approaches. GIS data and product precision may vary, but provide a sufficient depiction for purposes of the proposed action. Resource specialists considered what is most accurate, reliable, and relevant in their use of the best available scientific information.

## Maintaining the Forest Plan and Adapting to New Information

The Forest Plan is an integral part of an adaptive management cycle that guides future management decisions and actions. Forest plan-level adaptive management includes:

- Assessing information relevant to the Forest;
- Developing land management direction to respond to social, economic, and ecological conditions;
- Monitoring management outcomes and changing circumstances; and
- Revising or amending management strategies accordingly.

This adaptive management cycle enables the Forest to identify and respond to changing conditions, changing public desires, and new information, such as that obtained through research and scientific findings. The Forest's monitoring program is an integral part of this adaptive management cycle, consisting of monitoring questions and performance measures. The monitoring evaluation report will indicate whether or not a change to the Forest Plan may be warranted, based on new information.

## Chapter 2. Proposed Forestwide Direction

### Introduction

This chapter contains proposed direction that applies Forestwide, unless additional or more restrictive direction is found in the “Geographic Area” direction found in chapter 3. Forestwide direction includes desired conditions, goals, objectives, standards, guidelines and suitability of lands for forest uses and activities. It is not required that every topic include the full suite of plan components, and not every type of plan component is included for every topic.

Desired conditions describe the vision for the Forest, while other plan components (e.g., objectives, standards, and guidelines) and management approaches give guidance on how to achieve this vision. Management actions should be designed to move towards applicable desired conditions or not foreclose the opportunity to maintain or achieve the desired conditions over the long term. Management actions may have short-term negative effects in order to achieve desired conditions over the long term.

The Custer Gallatin intends to move toward these proposed Forestwide desired conditions over the next 15 or more years, although they may not be achieved for many decades. Some desired conditions may be very difficult to achieve, but it is important to move toward them over time.

The possible actions and potential management approaches and strategies the Custer Gallatin may undertake to make progress in achieving the desired conditions described in this plan can be found in appendix A.

Other Forest Service direction, such as laws, regulations, policies, Executive orders, and Forest Service directives (manual and handbook), are not repeated in the Forest Plan. The following standards and guidelines apply to National Forest land administered by the Custer Gallatin National Forest. These standards and guidelines are intended to supplement, not replace, the national and regional policies, standards, and guidelines found in Forest Service manuals and handbooks.

See the glossary for definitions and information on the terminology used in this chapter.

### Vision for the Custer Gallatin National Forest

The Custer Gallatin National Forest is a widely diverse landscape that sustains abundant native plants and animals, clean air and water, and productive soils, enhancing the quality of life for those who use and depend on the Forest for life-enriching activities and livelihoods. Ecological services and multiple use products derived from this landscape are outcomes of management practices that are sustainable, provide a sense of balance, enhance resiliency and adapt to societal and technological changes. Tribal members continue to have access to places of spiritual, ceremonial, and traditional cultural importance and the ability to collect traditional material. The Pryor Mountains, Ashland and Sioux Districts, offer distinct ecological conditions from the surrounding plains. Pine savannas of the Ashland and Sioux Ranger Districts drive local economies whereas higher profile buttes and hills are ecologically distinct from the surrounding plains providing forage, wildlife, timber, scenery and recreation opportunities largely unavailable outside national forest lands. The Pryor Mountains retain its remote, back country character. In the Greater Yellowstone Area, the Forest is part of a large connected expanse of core public lands providing outstanding scenery, opportunities for solitude, and primitive recreation. Front country areas are actively managed for multiple uses and transition to private land beyond the Forest boundary.

# Ecosystems

## Introduction

Ecological desired conditions are described at broad spatial scales. Desired conditions are designed to ensure that the ecosystem is diverse and sustainable and that it provides for desired ecological, social/economic services and benefits. Desired conditions may not be achievable in all areas when considering site potential and capability. For example, there are some areas that have crossed a threshold where primary ecological processes have degraded beyond the point of self-repair, and that is not easily reversed without significant inputs of resources.

While all ecosystems consist of similar components and processes, each is unique in its individual make-up. Each ecosystem displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and disturbance which has resulted in the current condition. In directing management toward achieving desired conditions, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own potential and capability and consider how it fits with both smaller and larger units of the landscape.

Ecological functions (for example, nutrient cycling, herbivory, natural disturbances) drive ecological conditions (for example, structure, connectivity and refugia as well as species composition, distribution and diversity). Ecological conditions perpetuate landscape heterogeneity and unique ecosystems, such as those contained in shrublands, grasslands, riparian areas, and old-growth forests, promoting biodiversity through a variety of structure and functions to which plant and animal communities have adapted and evolved. Ecological integrity allows ecosystems to respond and adjust to both natural disturbances and human influence under current and future climatic conditions without long-term adverse changes.

## Air Quality (AQ)

### Introduction

Air quality is one of the many resources the Forest Service monitors and protects on its public lands. Clean air is an important resource, not only because it provides life to nearly all living organisms, but also because it contributes to clean water and healthy fisheries, soils, and ecosystems and helps boost economies through tourism and recreation (i.e., clear vistas and fresh air). Air pollutants can deposit onto landscapes or exist in the air at levels that negatively affect water quality and ecosystem function (examples are algal blooms, mercury build-up in fish tissues, ozone damage, or the extirpation of rare plants).

The Forest Service must comply with Federal and State Air Quality laws and standards including the Clean Air Act and Wilderness Act. The 1970 Clean Air Act and amendments provides the foundation for protections of clean air on Federal lands. Under the Act, national ambient air quality standards (NAAQS) were established to protect human health and resources by identifying standards for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), and sulfur dioxide. All Federal, State, and private entities must comply with NAAQS. Monitoring on and near the Forest indicates that the Custer Gallatin is in compliance with NAAQS. Smoke from wildfires is considered a natural part of the landscape and background conditions, and thus is exempt from NAAQS violations.

The 1977 Clean Air Act amendments direct Federal land managers to “preserve, protect, and enhance the air quality” in 156 mandatory class I national parks and wilderness areas. Class I areas (also known as



class I airsheds) are wilderness areas that were designated before August 7, 1977, and are larger than 5,000 acres. All other land managed by Federal land managers is designated class II. Air quality-related values must be identified and protected in class I airsheds.

The Wilderness Act mandates that wilderness areas (class I and II) be preserved for wilderness character and managed to preserve and protect natural wilderness conditions. The Custer Gallatin does not manage any class I areas. There are two class II wilderness areas: the Absaroka-Beartooth Wilderness and Lee-Metcalf Wilderness. Yellowstone National Park and the Northern Cheyenne Reservation are both class I airsheds in close proximity to the Custer Gallatin.

The Custer Gallatin National Forest is a member of the Montana/Idaho Airshed Group, which implements a smoke management plan for these two states. The smoke management unit in Missoula, Montana, reviews, coordinates, and approves prescribed burning activities with a goal of allowing fire to function in its natural role while still meeting air quality standards. Despite these efforts, there can be temporary spikes in localized air pollution.

Air quality concerns on the Custer Gallatin include rising nitrogen levels (on the west side of the Forest), which may be coming from agricultural operations west or southwest of Montana. Smoke is also an air quality concern, including PM<sub>2.5</sub> and other chemical constituents, from wildfires (local, regional, and long-distance), which are predicted to increase in frequency, intensity, and duration, and parts of the Forest near urban areas that experience frequent inversions.

#### **Desired Conditions (FW-DC-AQ)**

- 01** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.

#### **Goals (FW-GO-AQ)**

- 01** The Forest Service cooperates with Federal, State, and/or Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (i.e., the Montana Idaho Airshed Group) to minimize smoke impacts.

#### **Guidelines (FW-GDL-AQ)**

- 01** Forest Service projects that initiate Prevention of Significant Deterioration (PSD) source application or large-scale NEPA projects (i.e., oil and gas) should not degrade Forest Air Quality Related Values (AQRVs) including visibility as a result of future air pollution from atmospheric pollutant deposition, ambient concentrations, or critical load exceedance.
- 02** Where air pollution from projects are predicted to negatively affect sensitive AQRVs or other Forest resources, best available control technology should be used on new projects and best available retrofit technology should be used on old projects under new review.

### **Soils (SOIL)**

#### **Introduction**

National environmental laws governing national forest management have consistently identified two distinct mandates: Forest Service lands provide goods and services for the American public and management actions must maintain the land's inherent ability to produce those goods and services for the enjoyment and use of current and future generations. Soil and land productivity must not be reduced as a result of management actions. Soil productivity is considered to be maintained when the

soil's capacity to support desired types and amounts of native vegetation remains unchanged from pre-disturbance levels.

Soils support terrestrial life by providing nutrients for plant growth through their ability to allow air and water to enter through the soil surface and circulate down through the soil profile, the ability to store water for subsequent plant use while also allowing for the drainage of excess water, the ability to buffer soil pH and detoxify contaminants, ability to limit both wind or water erosion, and the ability to support beneficial soil micro-organism populations as well as macro- and micro-invertebrates. All of the above are soil functions critical to sustaining the ability of national forest lands to provide desired goods and services for the American public.

Each soil has its own inherent capacity to produce desired goods and services as well as inherent susceptibilities to degradation from different types of soil disturbance. Given the extensive land management practiced on national forests, opportunities are rare on Forest Service lands to increase soil productivity beyond the inherent capacity of local soil resources. Thus, inherent productivity of the soil plays a critical role in how these lands can and should be managed.

The effect of management actions on all of the above soil functions, relative to a soil's inherent potential, determines soil quality. Soil quality, in turn can be used as a measure of success in maintaining inherent soil productivity and, if needed, a road map for how to move towards recovery if soil productivity has been reduced. The key to success in restoring soil productivity, when reduced, is to work with natural processes of soil restoration and where possible enhance those processes.

Coarse woody debris play an essential role of improving overall soil fertility levels in conifer stands which inherently grow on low fertility soils. Coarse woody debris in contact with the ground surface also provides a range of other soil benefits including moderation of soil temperature and moisture conditions and protecting the ground surface from erosion. Thus, maintaining adequate levels of coarse woody debris in managed conifer forests is an important component of maintaining soil productivity in these areas.

### Desired Conditions (FW-DC-SOIL)

- 01** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits.
- 02** Areas of highly erodible soils or landtypes with high mass failure potential are not destabilized.
- 03** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions.
- 04** Coarse woody debris (downed wood greater than or equal to 3 inches diameter) is present across the forested landscape, and is variable in amount, size, species and stages of decay across the Forest both spatially and over time. Low amounts are found on warm, dry potential vegetation types, in developed recreation areas, and other areas where the concern for fire impacts to values at risk is elevated. Higher amounts occur in the cold and cool, moist potential vegetation types as well as riparian areas.

### Standards (FW-STD-SOIL)

- 01** Vegetation management activities shall not exceed 15 percent detrimental soil disturbance (DSD) for pre-existing plus new management-caused soil DSD in activity areas. If pre-existing activity-caused DSD levels already exceed 15 percent prior to a management action, then the total of prior plus new

activity-caused DSD must not exceed the pre-existing DSD level and should move toward improvement.

- 02** Vegetation management activities in riparian management zones (RMZs) shall not exceed 10 percent detrimental soil disturbance for pre-existing plus new management-caused DSD in activity areas within the RMZ. If pre-existing, activity-caused DSD levels already exceed 10 percent DSD within an activity area in the RMZ prior to a management action, then the total of prior plus new activity-caused DSD shall not exceed the pre-existing DSD level in that activity area and should move towards improvement.

#### Guidelines (FW-GDL-SOIL)

- 01** Ground-based mechanical equipment used for vegetation management should not operate in areas where sustained grades exceed 35 percent in order to minimize the likelihood of downslope rill and gully erosion occurring along equipment tracks.
- 02** New temporary road construction should minimize long-term loss of topsoil material along road prisms.
- 03** After a road is decommissioned or the cessation of management activities on temporary roads, soil conditions along the road prism should be remediated corresponding to the site's restoration potential utilizing proven restoration methods.
- 04** In order to maintain soil productivity, mechanical scarification used to prepare a seedbed for conifer re-establishment should not result in detrimental soil displacement.
- 05** The use of ground-based equipment for timber harvesting or temporary road construction should be avoided in areas of high landslide potential to maintain land stability and improve operator safety.
- 06** A topsoil lift of no less than 6 inches and no more than 2-feet deep (based on properties of the local soil resource) should be removed separately from lower quality and/or less fertile subsoil and substrate materials for all new soil pit or trench excavations, such as for footings, continuous burn pits or trenches dug during pipeline or utility line installations on Forest Service lands where vegetation and water resource management are the principle objectives. This guideline does not apply to excavations associated with the maintenance or construction of system or temporary roads or their associated drainage and/or erosion control features.
- 07** Vegetation management prescriptions for conifer stands should ensure that sufficient quantities of coarse woody debris are left on the ground site after timber harvesting. Table 2-1 below identifies minimum average levels of coarse woody debris to be left on the ground after timber harvesting in conifer stands based on Region 1 primary vegetation types and minimum distribution criteria to ensure coarse woody debris are well distributed in treatment areas. Coarse woody debris in timber harvest units should be well distributed within each unit and preferentially comprised of the largest diameter, down coarse woody debris present.

**Table 2-1. Minimum average levels of coarse woody debris in conifer stands after timber harvesting**

Region 1 Broad Potential Vegetation Type	Common Conifer Species Present	Minimum Average Coarse Woody Debris (tons/acre)	Minimum Distribution
Warm Dry, Pine Savanna	Ponderosa pine	2	Maximum 40% area below target
Warm Dry, Montane	Ponderosa pine Douglas-fir <sup>1</sup>	6	Maximum 40% area below target
Cool Moist, Montane	Douglas-fir Lodgepole pine <sup>2</sup>	8	Maximum 30% area below target
Cold, Montane	Engelmann spruce Subalpine fir Lodgepole pine <sup>2</sup> Whitebark pine <sup>1</sup>	10	Maximum 50% area below target

<sup>1</sup> Species may not be present in certain areas.

<sup>2</sup> Can be an edaphic climax on coarse textured soils or substrates.

## Watershed, Aquatic, and Riparian Ecosystems

### Introduction

This introduction provides a brief synopsis of aquatic and riparian components on the Forest and the themes used for plan component development, including native fish, aquatic habitat, riparian areas, and water quality. National forest lands supply high quality water that supports a variety of uses throughout the Custer Gallatin. Watersheds, aquatic ecosystems, riparian areas, and wetlands have changed from historic conditions. Current conditions and trends indicate:

- A decline in westslope and Yellowstone cutthroat trout numbers in the montane portion of the planning area has occurred during the past several decades due primarily to invasive species, habitat alteration, and changes in climate. Westslope cutthroat trout and Yellowstone cutthroat core/conservation populations currently occupy approximately 9 percent and 46 percent, respectively, of their historic range within the plan area. They remain strong in some isolated stream reaches throughout the Custer Gallatin, particularly where natural barriers exist or barriers have been constructed to exclude nonnatives.
- Fisheries communities (composed of warm-water species) are generally less understood from a historical context in the Pine Savanna Ecosystems, but the Ashland and Sioux Geographic Areas do have streams (intermittent and perennial) that provide habitat for native prairie fish, and other aquatic and semi-aquatic assemblages.
- Stream flow alterations occur throughout the planning area from both private and Federal lands. Flow alterations have resulted in habitat degradation leading to dewatering of critical habitats, stream alterations, and decreased low flows during critical times.
- Many inventoried road culverts are confirmed to be partial barriers or total barriers to native fish species during some part of the year. In some cases, these barriers may be beneficial for retention of native fish populations by creating refugia that excludes nonnative fish.

- The Montana Department of Environmental Quality (2014) lists 34 stream reaches as water quality impaired under the Clean Water Act, some of which are a result of Forest activities. However, the Custer Gallatin has improved roads and watershed conditions such that those streams remaining listed have degraded conditions due to high background levels of sediments, contaminants, etc., and/or conditions that are outside of Forest Service control.
- The Custer Gallatin has been working to restore soil, watershed, and aquatic habitat conditions by implementing best management practices, removing excess roads, improving road conditions (reducing sediment), removing fish migration barriers, and implementing riparian conservation strategies.
- The Watershed Condition Framework Assessment completed in 2016 determined that 226 out of 273 or 83 percent of watersheds on the Forest are in class 1 condition (functioning appropriately). There are 47 watersheds or 37 percent that are rated as class 2 (functioning at risk). There were no class 3 (non-functioning) watersheds. The most prevalent negative effect to Montane Watersheds were nonnative species displacement of native salmonids while in Pine Savanna Watersheds the departure from expected aquatic ecosystem composition is difficult to quantify because of the lack of habitat reference sites. Three subwatersheds are currently designated as “priority” within the watershed condition framework where planning or ongoing restoration work is occurring; the Bozeman, Hyalite, and Shields Watersheds. Restoration work is also planned and/or ongoing in other drainages as priority under the watershed condition framework. The watershed prioritization process will occur intermittently throughout the life of this plan.
- Aquatic species of conservation concern for the Custer Gallatin are being identified at the regional level. The list can be reviewed at <http://www.fs.usda.gov/goto/R1/SCC>.
- Riparian and wetland vegetation types are currently mapped on over 75,400 Montane acres and 2,100 Pine Savanna acres of the Custer Gallatin National Forest which is less than 3 percent of the plan area. Riparian areas are important elements of watersheds that provide critical transition zones linking terrestrial and aquatic ecosystems. Riparian management zones, with associated plan components, will be established to protect the ecological integrity of these areas.

## Watershed and Aquatics (WTR)

### Desired Conditions (FW-DC-WTR)

- 01** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity.
- 02** Spatial connectivity is prevalent within or between watersheds. Lateral, longitudinal, vertical, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide unobstructed physical and chemical routes to areas critical for fulfilling life history requirements of aquatic, riparian-associated, and many upland species of flora and fauna.
- 03** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species.

- 04** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation.
- 05** The sediment regime within water bodies is within the aquatic natural range of variation. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
- 06** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (e.g., bankfull width, depth, entrenchment ratio, slope and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained.
- 07** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.
- 08** Municipal watersheds provide long-term predictable amounts of clean drinking water for those downstream communities that derive their principal water from them.
- 09** Beavers play an important ecological role by increasing water residence time and spatial extent of water on the landscape, and aquatic and riparian habitat complexity.
- 10** Riparian vegetation provides breeding, feeding and sheltering opportunities, as well as habitat connectivity and movement corridors for a wide range of terrestrial, semi-aquatic and avian wildlife species.
- 11** Instream and riparian habitat conditions for managed watersheds move in concert with or towards those in reference watersheds (such as, large woody debris recruitment, pool frequency and residual depth, width-to-depth ratios, stream shading and temperature, bank stability, etc.).
- 12** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The Forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the State of Montana's water quality standards (e.g., total maximum daily loads) or is permanently above natural or background levels.

#### Objectives (FW-OBJ-WTR)

- 01** Over the life of the plan, complete 200 miles of stream and headwater spring restoration; 50 acres of lake, pond and wetland restoration; and five aquatic organism passage projects across the spectrum of Montane and Pine Savanna habitats. Progress towards conservation of an at-risk plant, aquatic or wildlife species is made by completing at least one project per year with design features that restore habitat or populations of such species.

#### Standards (FW-STD-WTR)

- 01** New and reconstructed water withdrawal systems (such as new stream diversions and associated ditches) shall be screened to prevent fish and aquatic organism capture and water drafting/pumping sites shall also be screened and located away from native fish spawning locations.

- 02** Management activities in source water protection areas shall be consistent with applicable source water protection requirements and goals. Short-term effects from activities in source water protection areas may be acceptable when those activities support long-term benefits to source water protection areas and aquatic resources. See Table 2-2 for the current source water protection areas designated as municipal waters on the Custer Gallatin National Forest.

**Table 2-2. Municipal waters of the Custer Gallatin National Forest**

Community	Geographic Area	Source Water	Hydrologic Unit Code	Hydrologic Unit Name
Bozeman	Northern Gallatin Mountains	Bozeman Creek	100200080904	Bozeman Creek
Bozeman	Northern Gallatin Mountains	Hyalite Creek	100200081001	Upper Hyalite Creek
Bozeman	Bridger Mountains	Lyman Creek	100200080802	Lower Bridger Creek
Red Lodge	Absaroka Beartooth Mountains	West Fork Rock Creek <sup>1</sup>	100700060905	Lower West Fork Rock Creek
West Yellowstone	Madison Mountains	Whiskey Spring <sup>1</sup>	100200070204	Middle South Fork Madison River

<sup>1</sup> Municipal groundwater wells currently supply municipal water.

*Note:* This list contains the source water protection areas currently designated as municipal water sources, although all water that originates on the Forest could be used for municipal supply at some point downstream.

- 03** New, replacement, and reconstructed stream crossing sites (culverts, bridges, and other stream crossings) in fish-bearing streams shall accommodate at least the 100-year flow (unless site conditions or lack of resource values preclude installation of a structure that size) and allow the passage of fish.
- 04** Portable pump set-ups shall include containment provisions for fuel spills and fuel containers shall have appropriate containment provisions. Vehicles shall be parked in locations that avoid entry of spilled fuel into streams.
- 05** When drafting water from streams, pumps should be screened to prevent capture of fish and aquatic organisms. During the spawning season for native fish, pumping sites should be located away from spawning gravels.
- 06** Project-specific best management practices (including both Federal and state of Montana and South Dakota best management practices) shall be incorporated in land use and project plans as a principle mechanism for controlling non-point pollution sources, to meet soil and watershed desired conditions, and to protect beneficial uses.

#### Guidelines (FW-GDL-WTR)

- 01** When closing travel routes (such as roads, skid trails, temporary roads, and trails), decommissioning activities should reduce or eliminate detrimental effects from the travel routes to aquatic resources, including but not limited to sedimentation.
- 02** To maintain stream channel stability and aquatic habitat, large woody debris should not be cut and/or removed from stream channels unless it threatens critical infrastructure or human safety, such as mid-channel bridge piers.

- 03** To protect spawning fish, management activities that have the potential to directly deliver sediment to habitat, should be limited to times outside of spawning and incubation seasons.
- 04** Management actions to reduce beaver dam threats to infrastructure should use techniques that sustain beavers (e.g., using pipes to reduce water levels, notching dams to restore streamflow) in order to protect other ecological functions beavers provide.
- 05** In order to restore watersheds, management activities in watersheds with approved total maximum daily loads (TMDLs) should be designed to comply with the TMDL load allocations. Projects that produce short-term sediment increases should result in a long-term decrease in sediment delivery and/or sediment yield in the stream system which would be considered to be in compliance with sediment TMDLs.

## Riparian Management Zones (RMZ)

### Introduction

Riparian management zones are portions of watersheds where riparian-associated resources receive primary emphasis, and management activities are subject to specific standards and guidelines. Riparian management zones include traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems, by (1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams; (2) providing root strength for channel stability; (3) shading the stream; and (4) protecting water quality. Another critical function of riparian management zones is to provide for fish and wildlife habitat and connectivity.

Vegetation management within RMZs is allowed, but riparian and aquatic conditions must be maintained, restored, or enhanced (see Table 2-12 in “Terrestrial Vegetation” section for vegetation desired conditions). Many activities that can cause soil compaction or soil erosion are restricted or minimized. Since treatment may be necessary to achieve desired conditions, riparian management zones are not intended to be “no touch zones,” but rather “carefully managed zones” with an increase in protections in close proximity to water resources.

In order to achieve watershed desired conditions, the RMZ is broken into two areas called the inner and outer riparian management zones. Some activities are prohibited or restricted in the inner riparian management zone, whereas more active management is allowed in the outer riparian management zone. The RMZ widths extend either to the distance listed below or to the top of the inner gorge slope break, whichever is greater. The inner RMZ will extend to the top of the slope break where side slopes exceed 35 percent, as these areas have the highest potential for sediment delivery to water bodies. If an already established road is located within the inner RMZ and is more than 50 feet from the ordinary high watermark or bankfull channel, then the inner RMZ can end at the toe of the road fill, so that the road prism and all uphill area of that point is considered part of the outer RMZ. The RMZs are determined on the ground based on site conditions as follows:

**Category 1: Perennial and intermittent fish-bearing streams:** consist of the stream and the area on either side of the stream extending from the edges of the active channel to top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300-feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.

**Category 2: Perennial non-fish-bearing streams:** consist of the stream and the area on either side of the stream extending from the edges of the active channel to top of the inner gorge, or to the outer



edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150-foot slope distance (300 feet, including both sides of the stream channel), whichever is greatest.

**Category 3: Intermittent non-fish-bearing streams:** consist of the stream and the area on either side of the stream extending from the edges of the active channel to top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 100-foot slope distance (200 feet, including both sides of the stream channel), whichever is greatest.

**Category 4: Wetlands greater than one acre, natural lakes/ponds, and constructed ponds/reservoirs:** consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation; or to the extent of the seasonally saturated soil; or to the extent of unstable and potentially unstable areas; or to the distance of the height of one site-potential tree; or 150-foot slope distance from the edge of the wetland greater than 1 acre or the maximum pool elevation of constructed pond and reservoirs with shorelines comprised of riparian vegetation whichever is greatest.

RMZ protections do not apply to constructed ponds or reservoirs less than 1 acre which are developed for the purpose and continued use of livestock watering. Constructed ponds or reservoirs greater than one acre, developed for the purpose and continued use of livestock watering, receive RMZ protections only if shorelines are composed of riparian vegetation and/or the pond/reservoir has a constructed outlet/spillway where water regularly is conveyed throughout the course of the year.

**Category 5: Wetlands, seeps, and springs less than or equal to one acre and/or lands identified as landslide prone:** consist of the body of water or wetland or the extent of unstable or potentially unstable areas and: the area to the outer edges of the riparian vegetation; or to the extent of the seasonally saturated soil; or to the extent of unstable and potentially unstable areas; or 100-foot slope distance from the edge of the wetland, whichever is greatest. RMZs do not apply to seasonal ditches that were constructed to deliver water to downstream users.

Table 2-3 displays the widths of the inner, outer, and total RMZs on either side of a water body feature. The break location between inner and outer RMZ should be identified in the field based on site characteristics.

**Table 2-3. Riparian management zones: Distance of inner and outer areas on each side of a stream reach, lake, pond or wetland by RMZ category**

Stream/Water/Area Type	Inner (feet)	Outer (feet)	Total Width (feet)
Category 1: Perennial and intermittent fish bearing streams	100	200	300
Category 2: Perennial non-fish-bearing streams	100	50	150
Category 3: Intermittent non-fish-bearing streams	100	0	100
Category 4: Wetlands greater than 1 acre, natural lakes/ponds, and constructed ponds/reservoirs	100	50	150
Category 5: Wetlands less than 1 acre or lands identified as landslide prone	50	50	100

### Desired Conditions (FW-DC-RMZ)

- 01** RMZs have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to natural disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism.
- 02** RMZs are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge and have an intact flow regime similar to historical flow patterns.

### Standards (FW-STD-RMZ)

- 01** Vegetation management shall only occur in the inner riparian management zone in order to restore or enhance aquatic and riparian-associated resources. However, in the inner RMZ, non-mechanical treatments, e.g., hand fuel treatments, prescribed fire, sapling thinning, may be authorized as long as aquatic and riparian-associated resources are maintained or enhanced.
- 02** Pesticides, and other toxicants and chemicals shall only be applied within RMZs if needed to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities.
- 03** Refueling activity, equipment maintenance, and storage of fuels and other toxicants should be located outside of riparian management zones to minimize effects to aquatic resources. If refueling, equipment maintenance or storage is needed within RMZs, the locations must be approved by the Forest Service and have an approved spill containment plan that includes appropriate containment provisions.

### Guidelines (FW-GDL-RMZ)

- 01** To reduce the likelihood of sediment input to streams and reduce adverse effects to stream channels and riparian areas the following activities should be located outside of the RMZ: new permanent livestock handling, livestock trailing/loading/other handling activities, new sand and gravel pit extraction and/or placer mining/extraction.
- 02** To reduce the likelihood of sediment input to streams the following activities should be avoided in RMZs: new permanent or temporary roads and the construction of machine fireline, except where necessary for stream crossings and/or road relocation would contribute to attainment of aquatic and riparian desired conditions.
- 03** Trees felled inside RMZs should be left onsite, where it is safe to do so, unless they will be in excess of what is needed to achieve ecological and watershed desired condition.
- 04** Temporary fire facilities (e.g., incident bases, camps, staging areas, heli-spots, retardant batch plants, and other centers) for incident activities should be located outside of riparian management zones in order to minimize impacts. When no practical alternative exists, all appropriate measures to maintain, restore, or enhance aquatic and riparian associated resources should be used.
- 05** Vegetation management may occur in the outer RMZs for purposes such as fuels reduction, restoration, and wildlife habitat enhancement, so long as project activities in RMZs do not adversely impact the inner RMZ.

- 06** Clearcut harvest should not occur in RMZs. The purpose of this guideline is to maintain thermal cover and to minimize the risk for potential windthrow in the inner RMZ.
- 07** Salvage harvest should not occur in inner RMZs unless present and future woody debris needs are met and adverse effects can be avoided to inland native fish.
- 08** New landings, designated skid trails, staging or decking should be located outside RMZs to minimize effects to riparian and aquatic resources. If landings are needed inside of RMZs, minimize the disturbance area footprint and locate activities outside the active floodplain.

#### Suitability (FW-SUIT-RMZ)

- 01** Riparian management zones are not suitable for timber production, but timber harvest may be allowed for purposes such as fuels reduction, restoration, and wildlife habitat enhancement.
- 02** Firewood gathering is not suitable within the inner RMZ.

### Conservation Watershed Network (CWN)

#### Introduction

A conservation watershed network is a designated collection of watersheds where management emphasizes habitat conservation and restoration to support native fish and other aquatic species. The goal of the network is to sustain the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species. See appendix C for more information.

#### Desired Conditions (FW-DC-CWN)

- 01** Conservation watershed networks have high quality water and habitat and functionally intact ecosystems that support native fish, aquatic, and other riparian-dependent species and contribute to conservation and recovery of aquatic species of conservation concern.

#### Guidelines (FW-GDL-CWN)

- 01** Conservation watershed network, net increases (measured from beginning to end of each project) in stream crossings and road lengths should be avoided in riparian management zones, unless the net increase would improve ecological function in aquatic ecosystems.

### Terrestrial Vegetation (VEGT)

#### Introduction

This section addresses Forestwide plan components for terrestrial vegetation. The 2012 Planning Rule adopts a complementary ecosystem and species-specific approach, known as a “coarse-filter/fine-filter approach”, to provide the natural diversity of plant and animal communities and ensure long-term persistence of native species in the plan area. Coarse-filter plan components are designed to maintain or restore ecological conditions and processes for ecosystem integrity and diversity within agency authority and the inherent capability of the land. Fine-filter plan components provide for additional specific habitat needs, when those needs are not met through the coarse-filter components. Although many influences on vegetation are not easily controlled, the intent of plan components is to collectively provide for the full suite of native biodiversity across the plan area.

The Custer Gallatin supports a diversity of plant communities growing on sites that include Warm, Dry Woodland, Shrubland, and Grassland Foothills and Prairies; Montane to Subalpine Forests and Open

Parklands; and Cold, Steep Timberline and Alpine Areas. Riparian/Wetland, Aspen and Green Ash Woody Draw and other less abundant communities are scattered throughout this broad and diverse landscape.

Conifer expansion into Aspen, Green Ash Woodlands, Shrublands, Grasslands and Meadows may in part reflect natural ecotone dynamics, but fire exclusion and past overgrazing have likely caused more extensive ecotone conifer colonization and infilling of more open-canopied Pine Savanna Ecosystems than would be present under historic disturbance regimes.

Vegetation characteristics are influenced by inherent site features, such as soils and topography, which interact with dynamic system drivers, such as climate, vegetative succession, fire, insects, disease, invasive species, floods, droughts, and human uses and developments. Vegetation is dynamic, varying across time and space. Plan components that address composition, structure, and function of vegetation communities represent the coarse filter. Coarse filter plan components are designed to support disturbance regimes that will maintain and reinforce the desired vegetation conditions.

The fine filter for vegetation is addressed by components specific to three categories of native plant species: (1) threatened, endangered, proposed, and candidate species which are designated by the U.S. Fish and Wildlife Service; (2) species of conservation concern, which are identified by the regional forester; and (3) other species or communities identified by the local unit which do not fall into the above categories, but are of local interest.

Vegetation plan components are informed by multiple data sources, with emphasis placed on the natural range of variation. Natural range of variation is used as the ecological reference to assess ecosystem integrity. Additional factors include expected future climate conditions, resilience or resistance to disturbances, and wildlife habitat needs. Social and economic needs were also considered along with the natural range of variation to define desired conditions.

Desired conditions for vegetation in chapter 2 are to be applied at the Forestwide scale. Certain ecosystem characteristics, such as tree size and density, are also applicable at the scale of individual geographic areas. Individual project areas are generally not expected contain the full range of variability for any given ecological characteristic that would be found at the Forestwide scale. Rather, projects and activities must either contribute towards or not preclude the achievement of the desired conditions at the Forest scale. Standards and guidelines are designed to ensure that project activities are conducted in a manner that move the Forest towards desired conditions. Desired conditions may be achieved through both natural processes and management activities.

## At-Risk Plant Species (PRISK)

### Introduction

This section addresses plant species that are recognized as at-risk species under the Endangered Species Act or by the regional forester of the Forest Service. Federal at-risk species include those recognized as threatened, endangered, proposed, or candidate species under the Endangered Species Act by the U.S. Fish and Wildlife Service. At the time of the preparation of this Forest Plan, only whitebark pine (*Pinus albicaulis*) falls under the Endangered Species Act, as a candidate species. If any plants in the plan area become listed in the future, the general plan components would apply and additional species-specific components may be needed.

At-risk plant species designation also includes species of conservation concern, which are species other than federally recognized species that are known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about

the species' capability to persist over the long term in the plan area (36 Code of Federal Regulations 219.9; FSH 1909.12.52). Species of conservation concern for the Custer Gallatin can be reviewed at [www.fs.usda.gov/goto/R1/SCC](http://www.fs.usda.gov/goto/R1/SCC).

Forest Service Manual 2670 provides additional at-risk species management direction. Applicable weed management NEPA decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision [2006] and the Gallatin National Forest Noxious and Invasive Weed Treatment Project Environmental Impact Statement and Record of Decision [2005]) or subsequent NEPA decisions provide protection measures to follow when treating invasive plants near or in at-risk plant populations.

Botanical surveys focus on increasing information about at-risk plant species and additional plant species that may qualify as at-risk plant species in the future, but for which information is currently lacking to make any needed changes to the list by the regional forester.

### Desired Conditions (FW-DC-PRISK)

- 01** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present (also see Forestwide and geographic area desired conditions for whitebark pine in Forested Vegetation section(s)).

### Goals (FW-GO-PRISK)

- 01** The Custer Gallatin National Forest cooperates with the Greater Yellowstone Coordinating Committee-Whitebark Pine Subcommittee on whitebark pine conservation strategies and adaptive management of habitat.
- 02** The Custer Gallatin National Forest works with other agencies and landowners to expand inventories, identify potential habitat for at-risk species, and promote protection and/or restoration of associated habitats.

### Objectives (FW-OBJ-PRISK)

- 01** Progress towards conservation of an at-risk plant, aquatic, or wildlife species is made by completing at least one project a year with design features that restore habitat or populations of such species.

### Guidelines (FW-GDL-PRISK)

- 01** When site-specific analysis determines that management activities may potentially impact plant species of conservation concern, mitigation or protection measures should be provided to maintain occurrences or sustain habitats of plant species of conservation concern.
- 02** Wildland fire control lines, slash piles and retardant should not be placed within known populations of at-risk plant species with the exception of where fire control lines, slash piles and retardant may be allowed for purposes of restoration or being advantageous to the at-risk plant species.
- 03** When conducting management activities in or near whitebark pine trees or stands identified for collection of scion, pollen, or seed; areas identified as important for cone production; and whitebark pine plantations, project-level design criteria or wildland fire management strategies should protect them from potential loss to support the recovery or long-term persistence of this species.

## Forested Vegetation (VEGF)

### Introduction

Forested desired conditions are designed to maintain and enhance ecological integrity, diversity, function, and resiliency while contributing to social and economic sustainability as required by the 2012 Planning Rule. Desired conditions are based on an analysis of the natural range of variation for key ecosystem characteristics which provides an understanding of how ecosystems are dynamic and change over time in a manner that is resilient to perturbations and disturbance. As such, the natural range of variation is a guide to understanding how to restore a resilient ecosystem with structural and functional properties that will enable it to persist into the future. Although the natural range of variation is the underpinning, desired conditions represent an integration of additional factors such as wildlife habitat needs, existing or anticipated human use patterns, potential future climate conditions, resiliency to future disturbances, and ecosystem services that may be desired (such as reduction of fire hazard or production of forest products).

This section on forested vegetation deals exclusively with lands within the three forested Region 1 Broad Potential Vegetation Types found on the Custer Gallatin: Cold, Cool Moist, and Warm Dry. Due to important differences in species composition and biophysical setting, the Warm Dry Potential Vegetation Type has been divided into two zones: Montane and Pine Savanna. Forested desired conditions vary by broad potential vegetation types due to important differences in climatic conditions, productivity, biodiversity and disturbance regimes. Broad potential vegetation types essentially represent aggregations of similar biophysical environments (such as climate, aspect, and soil characteristics) that produce plant communities of similar composition, structure, and function. The vegetation communities that would develop over time, given no major disturbances (the climax plant community), would be similar within a potential vegetation type. However, existing vegetation condition may vary widely on a potential vegetation type, reflecting each site's unique history, Forest character, pattern of disturbances, and point in time along the successional pathways. The key ecosystem characteristics below change through time whereas potential vegetation types generally remain constant. See Reid et al. (2016) and references therein for a detailed description of these forest types.

The desired ranges apply to the Forestwide- and/or at the geographic area-scale as indicated and would not necessarily be appropriate to apply at smaller scales, such as project areas. Rather, projects and stand-level treatments would contribute to the broad desired conditions, and/or not preclude their achievement. Fluctuations in vegetation conditions over time are expected. Managing a particular vegetation characteristic at the upper, lower, or mid-point of the desired range may be appropriate, as influenced by other ecological, social or economic objectives. See section on "Proposed Management Approaches and Possible Management Actions" for more discussion on how to interpret and manage towards desired conditions for forested vegetation.

### Desired Conditions (FW-DC-VEGF)

- 01** The amount and distribution of forest cover types supports the natural diversity of seral stages and species diversity across the landscape and allows for appropriate recruitment and responses following disturbances. The desired condition for the distribution of the dominant forest cover types is shown in Table 2-4. Desired condition ranges for each broad potential vegetation type apply at both the Forest- and geographic-area-scales.

**Table 2-4. Existing and desired conditions for forest cover types within Region 1 Broad Vegetation Types**

<b>Region 1 Broad Potential Vegetation Type<sup>1</sup></b>	<b>Region 1 Cover Type<sup>2</sup></b>	<b>Desired Range<sup>3</sup> (% of Area)</b>	<b>Existing<sup>4</sup> (% of Area)</b>
Cold	Lodgepole	30– 45	24 (19–29)
	Mixed Mesic Conifer	1–5	3 (1–4)
	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–5	18 (14–23)
	Spruce/Fir	1–10	30 (25–35)
	Whitebark	50–60	22 (17–27)
Cool Moist	Lodgepole	40–60	30 (24–37)
	Mixed Mesic Conifer	15–30	20 (14–25)
	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–5	18 (13–23)
	Spruce/Fir	15 – 35	26 (20–31)
	Whitebark	1–5	2 (0–3)
Warm Dry-Montane	Aspen	1–5	2 (1–5)
	Douglas-fir <sup>6</sup>	70–90	49 (41–57)
	Lodgepole	5–10	8 (4–13)
	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–20	30 (22–38)
	Ponderosa pine	1–5	10 (6–15)
Warm Dry-Pine Savanna	Aspen	1–5	1 (0–1)
	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–15	60 (52–69)
	Ponderosa Pine	85–95	39 (31–48)

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring (see appendix F).

<sup>2</sup> Region 1 Cover Types are broad groups of existing vegetation based on the dominant species. A cover type often contains multiple tree species.

<sup>3</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>4</sup> Existing condition (with 90 percent confidence limit) comes from the Region 1 Summary Database.

<sup>5</sup> For existing condition estimate, the “Transitional-Grass/Forb/Shrub” size class includes all land with less than 20 square feet of basal area or 100 trees per acre.

<sup>6</sup> “Douglas-fir” cover type is a grouping of the “Dry Douglas-fir” and the “Mixed Mesic Conifer” R1 Cover Types in the Warm Dry Broad Potential Vegetation Type.

**02** The plan area supports the diversity of native tree species, generally within the natural range of variation. This diversity and distribution supports the resilience and adaptive capacity of individual tree species. The Forestwide desired condition for presence of tree species within each broad potential vegetation type is described in Table 2-5.

**Table 2-5. Existing and desired conditions for the proportion of land, within each R1 Broad Potential Vegetation Type, where particular tree species occur**

Region 1 Broad Potential Vegetation Type <sup>1</sup>	Species	Desired Range <sup>2</sup> (% of Area)	Existing <sup>3</sup> (% of Area)
Cold	Subalpine Fir	45–60	59 (54–65)
	Douglas-fir	5–10	6 (3–8)
	Engelmann Spruce	35–50	43 (38–49)
	Lodgepole Pine	30–45	33 (27–39)
	Whitebark Pine	85–95	40 (34–46)
Cool Moist	Subalpine Fir	25–45	47 (41–54)
	Douglas-fir	35–50	33 (27–40)
	Engelmann Spruce	15–25	42 (35–49)
	Lodgepole Pine	50–65	47 (41–53)
	Whitebark Pine	5–10	9 (5–12) 3 (1–5)
Warm Dry-Montane	Douglas-fir	70–90	60 (51–68)
	Engelmann Spruce	1–5	6 (2–9)
	Lodgepole Pine	30–50	15 (9–21)
	Limber Pine	1–5	14 (8–20)
	Ponderosa Pine	1–5	2 (0–5) 5 (2–8)
Warm Dry-Pine Savanna	Ponderosa Pine	85–95	46 (38–54)

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

<sup>2</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>3</sup> Existing condition (with 90 percent confidence limit) comes from the Region 1 Summary Database.

**03** The plan area supports a diversity of successional stages that is ecologically resilient and sustainable. Table 2-6 represents the desired condition of successional stages (estimated by size classes) across the landscape. The location and abundance of size classes fluctuate over time as forests develop, are influenced by disturbances, and may be limited by site productivity and species composition. The range of desired conditions allows for variations in the mix of structural stages to respond to potential changes in climate. Desired condition ranges for each broad potential vegetation type apply at both the Forest- and geographic-area-scales.



**Table 2-6. Existing and desired conditions for tree size classes within Region 1 Broad Vegetation Types**

<b>Region 1 Broad Potential Vegetation Type<sup>1</sup></b>	<b>Size Class<sup>2</sup></b>	<b>Desired Range<sup>3</sup> (% of area)</b>	<b>Existing<sup>4</sup> (% of area)</b>
Cold	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–5	18 (14–23)
	Seedling and Sapling (<5" DBH)	8–25	12 (8–15)
	Small Tree (5–9.9" DBH)	7–21	32 (27–37)
	Medium Tree (10–14.9" DBH)	17–50	28 (23–33)
	Large tree (15" + DBH)	22–65	7 (5–10)
Cool Moist	Transitional-Grass/Forb/Shrub <sup>5</sup>	1–7	18 (13–23)
	Seedling and Sapling (<5" DBH)	7–36	14 (10–18)
	Small Tree (5–9.9" DBH)	8–40	25 (19–30)
	Medium Tree (10–14.9" DBH)	12–61	27 (22–33)
	Large Tree (15" + DBH)	8–40	15 (10–19)
Warm Dry-Montane	Transitional-Grass/Forb/Shrub <sup>5</sup>	5–14	30 (22–38)
	Seedling and Sapling (<5" DBH)	6–17	7 (4–11)
	Small Tree (5–9.9" DBH)	6–16	20 (14–26)
	Medium Tree (10–14.9" DBH)	13–36	27 (20–34)
	Large Tree (15" + DBH)	27–74	15 (10–21)
Warm Dry-Pine Savanna	Transitional-Grass/Forb/Shrub <sup>5</sup>	2–8	60 (52–68)
	Seedling and Sapling (<5" DBH)	5–16	6 (3–10)
	Small Tree (5–9.9" DBH)	3–9	12 (7–17)
	Medium Tree (10–14.9" DBH)	12–41	14 (9–20)
	Large Tree (15" + DBH)	33–95	7 (4–11)

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

<sup>2</sup> Size class is the average diameter class of live trees, shown as ranges of diameter at breast height, or 4.5 feet above ground level. A stand within a particular size class may contain trees of multiple diameters, smaller and/or larger than the average class range.

<sup>3</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>4</sup> Existing condition (with 90 percent confidence limit) comes from the Region 1 Summary Database.

<sup>5</sup> For existing condition estimate, the "Transitional Grass Forb Shrub" size class includes all land with less than 20 square feet of basal area or 100 trees per acre.

**04** The plan area supports a range of forested vegetation densities across the landscape that is resilient and sustainable. Table 2-7 displays the desired condition ranges for the percent of each broad potential vegetation type in each density class. The range of desired conditions allows for variations in the mix of density classes across the landscape to respond to potential changes in climate. Low-density vegetation conditions provide resilience to drought stress, fires, and insect and disease outbreaks. Desired condition ranges for each Broad Potential Vegetation Type apply at both the Forest- and geographic-area-scales.

**Table 2-7. Existing and desired conditions for tree density classes within Region 1 Broad Vegetation Types**

Region 1 Broad Potential Vegetation Type <sup>1</sup>	Density Class <sup>2</sup>	Desired Range <sup>3</sup> (% of Area)	Existing <sup>4</sup> (% of Area)
Cold	Low (<40% canopy cover)	55–80	35
	Medium (40–60% canopy cover)	20–40	24
	High (>60% canopy cover)	1–10	41
Cool Moist	Low (<40% canopy cover)	10–40	19
	Medium (40–60% canopy cover)	40–60	18
	High (>60% canopy cover)	15–40	63
Warm Dry -Montane	Low (<40% canopy cover)	25–60	35
	Medium (40–60% canopy cover)	35–55	19
	High (>60% canopy cover)	1–20	46
Warm Dry -Pine Savanna	Low (<40% canopy cover)	60–95	76
	Medium (40–60% canopy cover)	1–20	22
	High (>60% canopy cover)	1–25	2

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

<sup>2</sup> Density classes are defined by average canopy cover. Canopy cover refers to the proportion of the forest floor covered by the vertical projection of tree crowns.

<sup>3</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>4</sup> Existing comes from the Region 1 Existing Vegetation Mapping Program.

**05** Snags (standing dead trees) occur within all forested potential vegetation and cover types, and vary in amount and distribution across the landscape over time based on site productivity, species composition and disturbance patterns such as wildfire, wind, insects and disease. A range of decay classes is present. The average desired quantity of snags is described in Table 2-8. While achieving these desired average conditions at large scales, snags are unevenly distributed across the Forest with densities that are generally higher in riparian areas to provide for snag-dependent species and woody debris in streams and lower along roads and in developed sites or other areas where the concern for human safety is elevated. Individual stands may have no snags, or a higher quantity, depending upon site-specific conditions. Desired condition ranges for each forest type apply at both the Forestwide and geographic area scales.

**Table 2-8. Average existing and desired conditions for snags [90% confidence limit shown in ( )]**

Snag Analysis Group <sup>1</sup>	Snags per Acre 10"+ Existing <sup>2</sup>	Snags per Acre 10"+ Desired <sup>3</sup>	Snags per Acre 15"+ Existing <sup>2</sup>	Snags per Acre 15"+ Desired <sup>3</sup>	Snags per Acre 20"+ Existing <sup>2</sup>	Snags per Acre 20"+ Desired <sup>3</sup>
Lodgepole Pine	22.4 (16.5–29)	30.7 (21.9–40.3)	3.7 (2.3–5.3)	4.2 (2.5–6.1)	0.6 (0.1–1.1)	0.8 (0.1–1.6)
Warm Dry	9.3 (6.6–12.5)	9 (3.9–15.7)	2.1 (1.3–3)	1.5 (0.3–3)	0.5 (0.1–0.9)	0.2 (0.1–0.6)
Cold	28.4 (23.1–33.6)	27.5 (21.8–33.6)	8.2 (6.2–10.3)	7.9 (5.9–10.1)	2.1 (1.3–3)	2.1 (1.2–3)
Cool Moist	19.9 (15–25.3)	22.5 (16.9–28.7)	6.3 (4.4–8.4)	7.1 (4.9–9.5)	1.6 (0.8–2.6)	1.8 (0.8–3)

<sup>1</sup> Snag analysis groups are from Bollenbacher (2008). Snag analysis groups are consistent with the R1 Broad Potential Vegetation Types except that areas dominated by lodgepole pine are separated (see appendix F).

<sup>2</sup> Existing condition (with 90% confidence limit) comes from the Region 1 Summary Database.

<sup>3</sup> Desired condition is also a Forestwide average and is derived from snag levels (with 90% confidence interval) found in predominantly unmanaged areas of the Custer Gallatin National Forest. Data source: R1 Summary Data Base.

**06** The amount of wildland fire per decade is within the natural range of variation to maintain resilient ecological conditions and adequate habitat for snag-dependent wildlife. Table 2-9 displays the desired condition ranges for each broad potential vegetation type. Desired condition ranges for each forest type apply at both the Forestwide and geographic area scales.

**Table 2-9. Existing and desired conditions for average amount of wildland fire per decade within Region 1 Broad Vegetation Types**

Region 1 Broad Potential Vegetation Type <sup>1</sup>	Fire Severity Classification <sup>2</sup>	Desired Range <sup>3</sup> (% of Area)	Existing <sup>4</sup> (% of Area)
Cold	Low Severity	0–1	1
	Moderate and High Severity	0–10	3
Cool Moist	Low Severity	0–5	1
	Moderate and High Severity	0–27	4
Warm Dry-Montane	Low Severity	0–14	3
	Moderate and High Severity	3–36	14
Warm Dry-Pine Savanna	Low Severity	16–72	9
	Moderate and High Severity	0–20	20

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

<sup>2</sup> Fire severity classification is defined in three broad categories of fire severity that have been identified based on the physical characters of fire and the fire adaptations of vegetation: low, moderate, and high.

<sup>3</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>4</sup> Existing comes from 2006 to 2015 Monitoring Trends in Burn Severity (MTBS) data.

<sup>5</sup> Does not apply to whitebark pine covertypes (areas currently dominated by whitebark pine) where the desired condition is no moderate or high severity fire.

- 07** Landscape-scale patch configuration and composition is conducive to ecological processes operating within their natural range of variation including the extent, intensity and frequency of disturbance events, to provide for habitat connectivity, wildlife movement and gene flow. In Montane Ecosystems, the density of patches per square mile is doubled relative to 2017. In particular, large, contiguous patches of medium-sized, closed canopy forest conditions are reduced (smaller percentage of landscape) as well as disaggregated to reduce contagion and increase landscape-level ecosystem diversity and heterogeneity. In turn, the extent and density of early- and late-seral patches is increased. Early-seral conditions are also less aggregated and more evenly distributed across the landscape resulting in greater diversity and contrast among patches. Table 2-10 shows the desired patch size distribution at the geographic area and Forestwide scale.

**Table 2-10. Desired patch size distribution for three broad seral stages in each R1 Broad Potential Vegetation Type**

<b>R1 Broad Potential Vegetation Type<sup>1</sup></b>	<b>Patch Size (acres)</b>	<b>Transitional Forest (grass, forb, shrub)</b>	<b>0–10" DBH (seedling, sapling)</b>	<b>&gt;10" DBH (medium, large)</b>
Cold Forest (% of Area)	<10	0–1 [0]	2–4 [5]	4–5 [3]
	10–50	0–1 [1]	4–7 [11]	9–10 [9]
	50–100	0–1 [1]	2–4 [4]	4–5 [5]
	>100	0–1 [4]	6–22 [22]	46–67 [35]
Cool Moist Forest (% of Area)	<10	1–1 [0]	2–3 [3]	2–3 [2]
	10–50	1–2 [1]	4–6 [6]	4–6 [5]
	50–100	0–1 [0]	2–3 [3]	2–3 [3]
	>100	1–1 [6]	13–45 [19]	13–45 [53]
Warm Dry-Montane (% of Area)	<10	2–5 [1]	4–7 [4]	5–7 [4]
	10–50	1–4 [2]	3–7 [9]	13–15 [12]
	50–100	0–1 [1]	1–2 [4]	6–7 [6]
	>100	1–6 [13]	3–13 [10]	35–57 [35]
Warm Dry-Pine Savannah (% of Area)	<10	1–4 [2]	0–3 [3]	2–3 [2]
	10–50	0–1 [3]	0–2 [3]	3–3 [4]
	50–100	0–1 [2]	0–1 [0]	1–2 [2]
	>100	0–3 [32]	2–21 [0]	61–87 [46]

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

*Note:* Desired range is expressed as a percentage of the landscape within each broad potential vegetation type. Existing condition estimate is shown in bracket after desired range. Existing condition data comes from the Region 1 Existing Vegetation Mapping Program.

- 08** The extent, concentration and distribution of large tree structure is sufficient to provide structural diversity, wildlife habitat, future snags, and potential future late-seral forest conditions. The desired range of large tree structure is shown in Table 2-11. Desired condition ranges for each broad potential vegetation type apply at both the Forestwide and Geographic Area scales.

**Table 2-11. Existing and desired conditions for large tree structure<sup>1</sup>**

<b>Region 1 Broad Potential Vegetation Type<sup>2</sup></b>	<b>Desired Range<sup>3</sup> (% of area)</b>	<b>Existing<sup>4</sup> (% of area)</b>
Cold	45–80	34 (29–39)
Cool Moist	20–50	25 (20–31)
Warm Dry-Montane	45–80	25 (18–31)
Warm Dry-Pine Savanna	55–95	18 (13–24)

<sup>1</sup> Large tree structure refers specifically to stands with 5 live trees greater than 15 inches in the Warm Dry Broad Potential Vegetation Type, 10 live trees greater than 15 inches in the Cool Moist Broad Potential Vegetation Type, and 8 live trees greater than 15 inches in the Cold Broad Potential Vegetation Type.

<sup>2</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring.

<sup>3</sup> Desired range is derived from SIMPPLLE, a spatially explicit, landscape level, dynamic simulation model (see appendix F).

<sup>4</sup> Existing condition (with 90% confidence limit) comes from the Region 1 Summary Database.

### Objectives (FW-OBJ-VEGF)

- 01** Implement at least one vegetation management project annually with explicit primary or secondary purposes of benefitting wildlife, non-commercial vegetation, and/or general terrestrial ecosystem conditions. Over the life of the plan, design and implement at least 10 percent of acres treated by vegetation management projects across the spectrum of Montane and Pine Savanna habitats with explicit primary or secondary purposes of benefitting wildlife, non-commercial vegetation, and/or general terrestrial ecosystem conditions.

### Guidelines (FW-GDL-VEGF)

- 01** To contribute to biodiversity and landscape heterogeneity, as well as provide habitat for old-growth-associated plant and animal species, vegetation management (including timber harvest, fuels treatment, or prescribed fire) in old growth forest other than lodgepole pine, should be used only to achieve one or more of the following purposes:
- a. Maintain or restore old growth habitat characteristics and ecosystem processes.
  - b. Increase resilience to disturbances or stressors (such as drought, high severity fire, bark beetles) that may have negative impacts on old-growth characteristics or abundance at stand or landscape scales.
  - c. Reduce fuel hazards to protect values at risk.
  - d. Address human safety.
- 02** To minimize disturbance, road construction (permanent or temporary) or other developments should be avoided in old growth forest unless access is needed to implement vegetation management activities and purposes as outlined in FW-GDL-VEGF-01.
- 03** To maintain snags (standing dead trees) over the long term for wildlife habitat and ecosystem processes, vegetation management projects should retain at least 800 snags per 100 acres in the Cold Potential Vegetation Types, 700 in the Cool Moist Potential Vegetation Types, 150 snags per 100 acres on Warm Dry Potential Vegetation Types, and 400 snags per 100 acres in Lodgepole Pine Cover Types (regardless of potential vegetation type). Due to their rarity and high value for wildlife, the largest snags available should always be prioritized for retention. Snags should be retained greater than 300 feet away from roads open for firewood collection. Guideline applies as an average across a project area. Snags need not necessarily be present on every acre or in every treatment unit; they

may be clumped as appropriate for the site, species, and existing snag distribution. If fewer than the minimum desired snags are present, live trees should be retained within treatment units with a preference for the largest and most decadent trees available. Trees with evidence of rot or wildlife use are preferred. Live replacement trees do not need to be retained when the objective of the treatment is regeneration or sanitation, or where retention is not possible due to operational limitations associated with harvest or burning implementation.

This guideline only applies if snag retention is needed to meet DC-FW-VEGF-05. It recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags/decadent trees and allows for variation in snag retention among treatment units with the intent of preserving the most desirable snags. Exceptions to the snag retention guideline may occur in areas where the minimum number of snags or live replacement trees of sufficient sizes are not present prior to management activities and where there is elevated concern with public safety or fire risk (e.g., developed sites, near landings, and in areas adjacent to infrastructure).

- 04** During vegetation management activities (e.g., timber harvest), and in the event that snags retained to meet FW-GDL-FW-03 fall over or are felled (for safety concerns), they should be left on site to provide coarse woody debris. Exceptions to this guideline may occur where there is elevated concern with public safety or fire risk (e.g., developed sites and areas adjacent to infrastructure).
- 05** Vegetation management prescriptions should retain 5 live trees greater than 15 inches in the Warm Dry Broad Potential Vegetation Type, 10 live trees greater than 15 inches in the Cool Moist Broad Potential Vegetation Type, and 8 live trees greater than 15 inches in the Cold Broad Potential Vegetation Type. Guideline applies as an average trees per acre across treatment units. Large live trees need not be present on every acre; they may be clumped as appropriate for the site and species. If the minimum amount of large/very large trees are not present, leave all that are available. No replacements or smaller sizes need be left unless desired in the site-specific prescription.

The purpose of this guideline is to maintain large tree structure in order to provide for resilience, future seed sources, structural diversity and wildlife habitat, future snags and downed wood, and to increase future management options. Trees best suited to leave are the longest lived, windfirm, most fire adapted species available. Exceptions may occur when there are none or fewer desirable large trees available due to factors such as insects, disease, lack of wind-firmness, lack of desirable species, or where retention is not possible due to operational limitations associated with harvest or burning implementation. Retained trees may also function as replacement snags, and/or be mixed in clumps with snags, to meet FW-GDL-VEGF-03.

## Other Vegetation (VEGNF)

### Introduction

The following desired conditions for deciduous woodlands, juniper woodlands, shrublands, grasslands, riparian/wetlands, alpine, and sparsely vegetated settings support ecological diversity, function, and resiliency. They are based on vegetation classifications grouped in broad potential vegetation types. Site potential is based on habitat type descriptions; ecological site description(s) or an equivalent description.

At-risk plant species' habitats are associated with these broad potential vegetation types. Meeting or moving towards the desired conditions for each of these types is intended to also provide for long-term

persistence of at-risk plant species. The at-risk plant species list outlines the associated broad potential vegetation type by species and can be reviewed at [www.fs.usda.gov/goto/R1/SCC](http://www.fs.usda.gov/goto/R1/SCC).

### Desired Conditions (FW-DC-VEGNF)

- 01** Native plant communities support diverse life forms and age classes, and are self-sustaining relative to site capability and potential, while providing for multiple uses.
- 02** Native plant species dominate. Nonnative species (such as Kentucky bluegrass, timothy, and smooth brome) may be present but do not increase in abundance and/or extent.
- 03** Plant communities achieve the desired conditions described in Table 2-12 below.

**Table 2-12. Desired conditions for deciduous woodlands, juniper woodlands, shrublands, grasslands, riparian/wetlands, alpine, and sparsely vegetated broad potential vegetation types<sup>1</sup>**

<b>R1 Broad Potential Vegetation Type</b>	<b>Desired Condition Description by Vegetation Type</b>
Xeric Grassland	<p>Xeric Grassland plant communities have high diversity of tall and medium height, native perennial cool and warm season grasses (for example, Idaho fescue, western needlegrass, bluebunch wheatgrass, needle-and-thread grass, green needlegrass, little bluestem) and short grasses (for example, Sandberg bluegrass, junegrass, blue grama). Subshrubs and shrubs may be present with minor cover. There is a variety of forbs in varying amounts. The diversity of plant species present allows for drought tolerance. Individual species can vary greatly in the amount of production depending on growing conditions. Vegetation typically has strong and robust root systems that allow production to increase considerably with favorable growing conditions. This vegetation type provides for soil stability and a functioning hydrologic cycle. Plant litter is a common component and is available for soil building and moisture retention. There is very little movement of plant litter off-site with natural plant mortality typically being low. Biological soil crusts are found on almost all soil types, but are more commonly found in arid areas where plant cover is low and plants are more widely spaced. Bare ground is present because of the warm dry nature of these sites but at low amounts.</p> <p>Encroachment by conifers is limited since these grasslands are either maintained by a high frequency, low-severity fire regime or are maintained by site conditions where they do not require fire to maintain grassland vegetation. These vegetation types are generally tolerant of fire although recovery is a function of fire intensity and species. Maintenance of grasslands is dependent, in part, on periodic fires for nutrient release and encroaching shrubs and trees.</p>
Mesic Grassland	<p>Mesic Grassland plant communities have greater amounts of mesic forbs, higher cover, and higher species richness than xeric grasslands. Mesic grasslands are characterized by long lived, moderately deep -rooted native perennial cool season grass species (i.e., Idaho fescue, upland sedges, western needlegrass, etc.) with a wide variety of mesic forbs present in varying amounts. Shrubs may be present with minor cover. Biological soil crusts are found on almost all soil types while these more moist habitats generally support more lichens and mosses than other types of crusts. Bare ground is typically low across most sites; plant litter is the dominant ground cover and available for soil building and moisture retention. Plant litter rarely moves off-site.</p> <p>These vegetation types are generally tolerant of moderate intensity wildfire. Common dominant grasses, such as Idaho fescue, may be top-killed, but the root crowns and associated growing points are protected and respond favorably with vigorous regrowth. Frequent burning maintains diversity in these vegetation types.</p>

<b>R1 Broad Potential Vegetation Type</b>	<b>Desired Condition Description by Vegetation Type</b>
Xeric Shrubland/ Woodland	<p>Xeric Shrubland plant communities support shrub species such as Wyoming big sagebrush, mountain big sagebrush, low sagebrush, black sagebrush, and bitterbrush. Overstory species vary by location and site type. For example, Wyoming, black, and low sagebrush tends to occupy the lower, drier and hotter sites with shallow soils whereas mountain big sagebrush typically dominates sites with deeper, well developed soils with more plant available moisture. The understory is typically dominated by grass or grass-like species such as needle-and-thread, Sandberg bluegrass, and bluebunch wheatgrass. Canopy cover varies depending on the site and growing conditions, but is typically low to moderate. Biological soil crusts are found on almost all soil types, but are more commonly found in arid areas where plant cover is low and plants are more widely spaced. Bare ground is present in higher amounts when compared to mesic shrubland sites.</p> <p>Sagebrush and native perennial grass/forb communities have a diversity of age and cover classes on the landscape to provide a variety of wildlife habitats and productivity conditions. Suitable habitat for greater sage-grouse is distributed across priority (core) and general habitat areas and includes breeding, nesting, brood-rearing, and wintering habitats. Distribution of these habitats allow for dispersal and genetic flow. Open sagebrush habitat with limited or no overstory trees, such as ponderosa pine or Douglas-fir, provides habitat connectivity. Site-specific conditions apply to an area being used by sage grouse for the appropriate life stage and not across the entire landscape.</p> <p>Resilient sagebrush ecosystems typically have a mosaic of multiple seral plant communities across the landscape. Fire occurs infrequently, or in small extents, as a natural process, limiting colonization of conifer trees and establishment by invasive species. The natural fire regime of xeric shrublands maintains a patchy distribution of shrubs, so the general aspect of the vegetation is shrub-steppe grassland. Periodic, low-intensity burns can reduce sagebrush cover and increase abundance of herbaceous species, creating a mosaic of shrubland-grassland patches.</p> <p>Xeric woodlands are typically hot and dry, or are steep sites, with shallow, skeletal soil. Scattered overstory species vary, but include mountain mahogany, Rocky Mountain juniper, and Utah juniper. Cover of conifers is limited, as it is maintained by a natural high frequency, low-severity fire regime. While sagebrush are often killed by fire, nonlethal or mixed-severity fires that burn in a mosaic pattern leave live individuals and promote age class diversity and sprouting of other shrubs (e.g., rabbitbrush, horsebrush) and grass species.</p>
Mesic Shrubland	<p>Mesic Deciduous Shrubs (for example, chokecherry, snowberry, ninebark, serviceberry, shrubby cinquefoil, snowfield big sagebrush) are the dominant overstory species with grass or grass-like species (such as Idaho fescue, mountain brome) and various mesic forbs (for example, cinquefoil, sticky geranium, and prairie smoke) typically dominating the understory. Shrub canopy cover varies depending on the site and growing conditions (for example, temperature, timing and amount of precipitation), but is typically moderate to high, and may result in lower cover of understory species.</p> <p>Most of the mesic shrub species are vigorous root crown sprouters and respond favorably to fire, typically sprouting immediately following fire. However, extremely hot and intense fires that occur during summer months can cause damage to these shrublands and seed banks. However, periodic less intense burns can maintain these systems.</p>
Riparian/ Wetlands/ Mesic	<p>Riparian Ecosystems are comprised of a mosaic of communities dominated by native species which tolerate and are adapted to periodic flooding and an associated seasonally high water table. Dominant shrubs may include mountain alder, various species of willows, river birch, dogwood, hawthorn, chokecherry, rose, silver buffaloberry, Rocky Mountain maple and/or</p>



<b>R1 Broad Potential Vegetation Type</b>	<b>Desired Condition Description by Vegetation Type</b>
Deciduous Woodlands	<p>snowberry, among others. A wide variety of native herbaceous species, including, grasses, sedges, rushes, spikerushes, bulrushes and forbs, are present in the understory in varying amounts. The riparian complex is a mosaic of herbaceous and/or woody plant communities that armor streambanks and create floodplain roughness, slowing flows, and facilitating bank and floodplain development and associated riparian species recruitment and regeneration. Groundwater dependent ecosystems support deeply rooted vegetation and include, but are not limited to, seeps, springs, fens, marshes, and wetlands. Wetlands are comprised by dominant native vegetation adapted to saturated (anerobic) soil conditions. Low willow species (for example, wolf willow) and bog birch are typically present in subalpine wetlands. Herbaceous species may be dominated by sedges, rushes, spikerushes, cattails and/or bulrushes. Bryophytes, including sphagnum, are often well represented in fens.</p> <p>Deciduous trees, particularly several species of cottonwood, may be present along with riparian shrubs and herbaceous species. In wide valley bottoms, the vegetation typically is a mosaic of all lifeforms with patterns reflecting the meander patterns of the stream/river. Plains, narrowleaf, or black cottonwood are supported at lower elevations with Engelmann spruce and subalpine fir at higher elevations; on drier sites, Douglas-fir and Rocky Mountain juniper may be present along riparian corridors.</p> <p>Aspen stands have a diversity of age and structural classes are maintained to provide wildlife habitat, natural fuel breaks, and other ecosystem functions. Aspen stands are joined together by a shallow, subsurface root network. Stands expand and contract over time in response to natural disturbances like browsing and wildfire. Where aspen occur, there is always water near the surface and stands thrive best in abundant sunlight. Healthy stands have a mix of older, middle aged and young “trees” (stems) and support a wide variety of forbs and shrubs. The rich understory of an aspen stand is many times more diverse than the floor of a conifer forest.</p> <p>Green ash draws (also locally known as woody draws) are dominated by green ash trees with a shrub and herbaceous undergrowth. Shrubs such as chokecherry, serviceberry, wild plum, and hawthorn dominate the taller and more conspicuous shrub layer. Herbaceous species such as Sprengel’s sedge and shade-tolerant forbs, dominate the lower layer. All age groups of hardwood tree species are present (seedlings, saplings, pole, and mature) in late-seral states while age classes may vary in earlier seral states following natural disturbances. Bare ground is typically low (Ashland and Sioux Geographic Areas).</p> <p>Typically, with the exception of conifers, species in riparian/wetland systems respond favorably to fire. The growing points of the vegetation are usually protected in the moist to saturated soil or have sprouting capabilities. Regrowth typically occurs within the same growing season.</p>
Alpine	<p>Alpine ecosystems occupy harsh high elevation sites, resulting in short stature and relatively slow growth for both shrubs and herbaceous species. Wetland communities are present in snowloaded depressions, and support various willow species (for example, planeleaf willow), along with wetland herbaceous species (such as tufted hairgrass, marsh marigold). Alpine ecosystems are mostly treeless, although some conifers (for example, subalpine fir, whitebark pine) may be present with minor cover as krummholtz patches. Vegetation cover is typically low to moderate, depending on site characteristics. The plant communities are dominated by a number of native shrubs, forbs, grass and grass-like species including: arctic willow (turf community), mountain avens (cushion plant community), mountain heather and moss-heather (snow bed communities).</p>

R1 Broad Potential Vegetation Type	Desired Condition Description by Vegetation Type
	Many of these areas experience only patchy fire due to the low amounts and patchiness of fuels. The fire-return interval is typically very long in alpine ecosystems. Historically, stand-replacing fires occur infrequently in adjacent associated subalpine woodlands. Fire severity and spread is usually variable due to the short duration without snow cover. In addition, limited fuel loading and rock scree fields preclude fires from spreading if lightning strikes do occur (Montane Districts).
Sparsely Vegetated	Sparsely vegetated areas occupy harsh talus sites, rocky sites, disturbed sites, exposed sites, or badlands. Tree and herbaceous cover is low due to limited soil development and dry growing conditions, site disturbance, or rocky conditions. Natural rock outcrops cover a wide range of rock types, varying from acidic to highly calcareous. Native vegetation is sparse or largely lacking. Bryophytes and lichens often occur in crevices and occurs on open rock surfaces where the competition from vascular plants is absent. Species composition can vary widely, depending on the moisture regime and adjacent communities contributing to the seed source.

<sup>1</sup> Region 1 Broad Potential Vegetation Type is a coarse grouping of Region 1 Habitat Type Groups that is applicable for broad-scale analysis and monitoring. See crosswalks for habitat type groupings and metadata from Reid et al. (2016).

## Guidelines (FW-GDL-VEGNF)

### *Aspen and Green Ash Draws*

- 01** In order to minimize impacts, new buildings or other structures associated with developed sites should be located outside of aspen stands or green ash draws.
- 02** Vegetation treatment should retain trees with signs of cavity nesting, where this will not conflict with aspen regeneration or green ash draw restoration.
- 03** New allotment infrastructure should be located to minimize livestock impacts in aspen stands or green ash draws.
- 04** New roads should not be constructed in aspen stands or green ash draws except as needed to cross the area or as needed for restoration purposes.
- 05** New locatable/leasable mineral development should be avoided in aspen stands or green ash draws. If they cannot be avoided, then operators should take all practicable measures to maintain, protect, and rehabilitate the habitat affected by the operations.

### *Shrublands*

See plan components for shrubland habitats for greater sage-grouse habitat needs and big game winter ranges (see “Wildlife” section).

## Forest Products and Plant Materials (FP)

### Introduction

Forest products and plant materials are part of the overall ecosystem services provided. They include, but are not limited to, mushrooms, firewood, posts and poles, Christmas trees, medicinal plants, and teepee poles.

### Desired Conditions (FW-DC-FP)

- 01** A variety of special forest products and plant materials are available for commercial, Tribal, personal, educational, and scientific uses.

### Guideline (FW-GDL-FP)

- 01** When authorizing special forest product and plant materials collection, the permit should require sustainable collection methods and levels.

## Fire and Fuels (FIRE)

### Introduction

Fire is a primary ecological process that has shaped and maintained forest and non-forest ecosystems, which in turn sustains native plant communities and wildlife species. Fire on the landscape occurs due to unplanned (natural and human caused) and planned (prescribed fire) ignitions. The majority of natural ignitions and the largest fires occur in mid-July through late September, and are generally wind-driven events. Typical fire behavior common in the Ponderosa Pine Woodland and Savanna landscapes on the east side of the Forest includes low intensity, fast-spreading surface fires with occasional uncharacteristic large stand-replacing fires. The more mountainous landscapes on the central and west side of the Forest experience ignitions resulting in mixed intensity, mixed severity fires and high intensity, large stand-replacing fires. Prescribed fires (broadcast and piled) typically occur in the spring (March–June) and in the fall (September–November) with fire intensities dependent upon the objectives of the individual project.

Fire management strives to balance the natural role of fire while minimizing the impacts from fire on values to be protected, especially in the wildland urban interface. This can be accomplished by implementing a coordinated risk management approach to promote landscapes that are resilient to fire-related disturbances and preparing for and executing a safe, effective, and efficient response to fire.

Treatment of vegetation for hazardous fuels mitigation is typically to reduce fire intensity and will focus on restoring and maintaining natural fire regimes and reducing the negative impacts of wildfires to watershed health, wildlife habitat, community values at risk and air quality. Refer to other plan components related to vegetation management, most of which would also apply to fuel reduction treatments.

### Desired Conditions (FW-DC-FIRE)

- 01** Wildland fires burn with a range of intensity, frequency, and extent that allows ecosystems to function in a resilient and sustainable manner.
- 02** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland-urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk.
- 03** There are minimal detrimental impacts to values at risk from wildland fire.

### Goals (FW-GO-FIRE)

- 01** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the Forest to provide education about wildfire risk and that wildland fire is an ecological process

- 02** Fire management actions are coordinated with state, local, and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.

#### Objectives (FW-OBJ-FIRE)

- 01** Hazardous fuels mitigation occurs on a minimum of 60,000 acres per decade. Treatment includes initial entry and maintenance to ensure desired conditions are achieved.

#### Standards (FW-STD-FIRE)

- 01** All wildfires shall have a management response that uses a risk-based approach.

#### Guidelines (FW-GDL-FIRE)

- 01** The Forest should use wildland fires Forestwide to meet multiple resource desired conditions where and when conditions permit, as long as anticipated risk is within acceptable limits.
- 02** To reduce the negative impacts of wildfires or improve fire control opportunities, fuels treatments should be designed to remove or rearrange the live and dead vegetation as necessary to reduce fire intensity.
- 03** In order to minimize resource damage, minimum impact suppression tactics (MIST) should be utilized in sensitive areas, such as designated wilderness areas, wilderness study areas, designated and eligible wild and scenic river corridors, research natural areas, special areas, riparian management zones, sensitive habitat of at-risk species, cultural and historic sites, developed recreation areas, special-use permit areas that have structures, and historic and recreational trails.

## Carbon Storage and Sequestration (CARB)

### Introduction

Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils. The sink of carbon sequestration in forests and wood products helps to offset sources of carbon dioxide to the atmosphere, such as deforestation, forest fires, and fossil fuel emissions.

Sustainable forestry practices can increase the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run. Harvesting and regenerating forests can also result in net carbon sequestration in wood products and new forest growth. Also see “Terrestrial Vegetation” and “Soils.”

### Desired Conditions (FW-DC-CARB)

- 01** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates.

## Invasive Species (INV)

### Introduction

A species is considered to be invasive if it meets two criteria: (1) it is nonnative to the ecosystem under consideration, and (2) its introduction causes, or is likely to cause economic or environmental harm or

harm to human health (Executive Order 13112, 1999). Invasive species includes all taxa, including plants, vertebrates, invertebrates, and pathogens (such as blister rust).

Management activities for aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens) is based upon an integrated pest management approach on all areas within the National Forest System, and on areas managed outside of the National Forest System under the authority of the Wyden Amendment (P.L. 109-54, section 434), prioritizing prevention and early detection and rapid response actions as necessary (FSM 2902). Integrated pest management is an ecosystem-based strategy that focuses on long-term prevention of invasive species or their damage through a combination of techniques such as physical, biological or chemical control, habitat manipulation, or modification of cultural practices. While each situation is different, the following major components are common to all integrated pest management programs: prevention, early detection/rapid response, control and management, restoration, and collaboration.

There is a regulatory designation of certain terrestrial and aquatic invasive plants which are identified as “noxious weeds” defined through Federal and individual State statutes. A noxious weed is defined by Montana Code Annotated (MCA 7-22-2101) as “any exotic plant species established or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities”. A noxious weed is defined by South Dakota Code (chapter 38-22, article 12:62:02:01) as “a weed which the commission has designated as sufficiently detrimental to the state to warrant enforcement of control measures.” Noxious weeds are capable of successfully expanding their populations into new ecosystems beyond their natural range and can create lasting impacts to native plant communities. Impacts from noxious weeds can be exacerbated by fire, native pests, weather events, human actions, and environmental change.

The purpose of the invasive species plan components are to ensure that all Forest Service management activities are designed to minimize or prevent establishment or spread of invasive species on national forest lands, or to adjacent areas, and to provide for healthy resilient and resistant ecosystems. Protection and prevention measures outlined in applicable weed management NEPA decisions (Custer National Forest Noxious Weed Management Environmental Impact Statement and Record of Decision [2006] and the Gallatin National Forest Noxious and Invasive Weed Treatment Project Environmental Impact Statement and Record of Decision (2005)) provide invasive plant species management direction. In addition to current NEPA decisions or subsequent NEPA decisions for weed management, Forest Service Manuals 2070, 2080, 2150 and 2900 provide additional invasive species management direction.

### Desired Conditions (FW-DC-INV)

- 01** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new nonnative invasive species become established on the Forest. Where nonnative species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative *species* occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems.
- 02** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.

### Goals (FW-GO-INV)

- 01** Coordination and cooperation with state and county agencies, Tribes, non-government organizations, and adjacent landowners support integrated pest management including invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities.

- 02** Coordination with state/county agencies and Tribes support implementation and enforcement of regulations, plans, and guidance on invasive species management across the national forest, including but not limited to:
- State regulations related to prevention and control of aquatic and terrestrial invasive species (and noxious weeds);
  - State regulations associated with utilizing, storing, transporting, or certifying invasive species-free (and/or noxious weed-free) straw, hay, mulch, gravel, forage, seed, or other materials;
  - Statewide aquatic nuisance species management plans, fish and wildlife management plans, early detection and rapid response plans, or other statewide or regionwide invasive species management plans affecting the plan area.
- 03** Agreements and memorandums of understanding with other Federal and state agencies, non-government organizations, Tribes, and other partner organizations address invasive species issues. Collaborative efforts such as “cooperative weed management areas”, “cooperative invasive species management areas”, or similar collaborative partnerships support invasive species management across the landscape.
- 04** A coordinated (internally and externally) invasive species management, awareness, and education approach supports:
- Improved invasive species awareness.
  - Opportunities for cooperators, organizations and members of the public to adopt areas on the Forest for invasive species management are provided. This would include survey, inventory, monitoring, and/or treatment.
  - Development and distribution of invasive species education materials at high use areas and Forest Service offices.

#### Objectives (FW-OBJ-INV)

- 01** Noxious weed species management actions are employed annually on 4,000 acres of inventoried acres so that new infestations are prevented; densities of existing infestation are reduced; total acres or areas infested are reduced; infested acres or areas are restored/rehabilitated; existing infestations are contained, controlled, suppressed, or eradicated depending on infestation characteristics, management opportunities, and resource values at risk; and uninfested areas are maintained and/or protected.

#### Standards (FW-STD-INV)

- 01** For all proposed projects or activities, the risk of noxious weed introduction or spread shall be determined and appropriate mitigation measures shall be implemented. Activities shall be designed to minimize the risk of spreading the infestation.
- 02** Decisions authorizing the use of chemicals shall outline protection measures for treatment and measures to minimize contamination of water resources and injury to non-target desired plants, including at-risk species.

## Guidelines (FW-GDL-INV)

- 01** Following soil-disturbing management activities, reseeding with Forest Service-approved, weed-free seed and locally-adapted native plant species should occur promptly during optimal moisture conditions for germination.
- 02** Proposals for goat or sheep grazing for weed control purposes should be coordinated with the appropriate state wildlife biologist to determine if bighorn sheep may occur in the area. At least 9 miles of separation should be maintained between bighorn sheep and domestic sheep or goats being used for weed control purposes.
- 03** Invasive plant treatments used to restore habitat of at-risk-plant populations should use methods that are not detrimental to those species.
- 04** Forest Service employees and agency-authorized personnel should use best management practices and agency guidance to inspect and clean equipment (including boats, rafts, waders and boots, drafting equipment, water tenders, helicopter buckets, etc.) prior to use in a water body or when moving between watersheds or water sources to reduce the potential for the introduction of aquatic invasive species, including aquatic pathogens.

## Wildlife (WL)

### Introduction

This section provides direction designed to maintain the diversity of animal communities and support the persistence of native wildlife species on the Custer Gallatin. Terrestrial wildlife species on the Forest include birds, mammals, reptiles, amphibians, and invertebrates. Aquatic species such as fish, and aquatic or semi-aquatic invertebrates, are addressed separately. Wildlife habitat on the Forest is extremely diverse, ranging from the rugged topography and alpine environs associated with the highest peaks in the state of Montana, to the more temperate coniferous forest slopes at mid-elevations, to the Pine-Savanna and Badland Ecosystems at lower elevations in the eastern Districts. Such diversity and associated complexity provides conditions for a vast array of wildlife species and guilds, with over 600 species of mammals, birds, reptiles and invertebrates recorded on the Forest (Montana Natural Heritage Program 2017). Many species are residents, with some individuals spending their entire lives within the Forest, while others are migratory, and spend only part of their life cycle here.

The 2012 Planning Rule adopts a complementary ecosystem- and species-specific approach, known as a coarse-filter/fine-filter approach, to provide for the diversity of plant and animal communities and the long-term persistence of native species in the plan area. The coarse-filter plan components are designed to maintain or restore ecological conditions for ecosystem integrity and biological diversity on the Forest. Fine-filter plan components are designed to provide for additional specific habitat needs for native animal species when those needs are not met through the coarse-filter plan components. Since the Forest Service mission with respect to wildlife is to provide habitat for native species, most of the coarse-filter, and some of the fine-filter plan components that benefit wildlife are found in the “Terrestrial Vegetation” section, or other resource areas of this document.

### Desired Conditions (FW-DC-WL)

- 01** A diversity of wildlife species is present on national forest lands within the plan area, contributing to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure, as well as social and economic benefits such as wildlife viewing, photography, hunting and trapping.

- 02** Vegetation conditions are generally within the natural range of variation, thereby providing resources needed for feeding, breeding and sheltering by all native species, particularly during periods of high energy demands, such as reproductive seasons and winter.
- 03** Human-related foods and attractants are unavailable to most wildlife species. Natural wildlife foraging patterns are the norm, while food conditioning and/or habituation of animals, and associated wildlife conflicts with humans do not occur. Landscape patterns provide habitat connectivity for native species, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily, seasonal, and dispersal movement of animals to maintain genetic diversity.
- 04** There is low risk of disease transmission between domestic animals and wildlife.

## Wildlife Species at Risk

### Introduction

Plan components in this section address specific needs of at-risk species, which include federally listed threatened and endangered species, plus proposed and candidate species as identified under provisions of the Endangered Species Act, as well as species of conservation concern identified for the Custer Gallatin by the regional forester. Most habitat and other life cycle requirements for at-risk wildlife species are addressed by coarse-filter plan components that deal with key ecological characteristics such as direction for vegetation management, as well as management of other resources and activities (e.g., soils, riparian areas, fire/fuel management, minerals, livestock grazing, and/or recreation).

### Goals (FW-GO-WLSAR)

- 01** Through Forest Service cooperation and collaboration with other agencies and Tribal governments in the development of conservation strategies and recovery plans, as well as coordinated management of habitat, federally listed species occurring on national forest lands achieve recovery, and the need for listing of additional wildlife species under the Endangered Species Act is prevented.

### Objectives (FW-OBJ-WLSAR)

- 01** Progress towards conservation of an at-risk plant, aquatic, or wildlife species is made by completing at least one project a year with design features that restore habitat or populations of such species.

## Threatened, Endangered, Proposed, Candidate Wildlife Species (WLTEPC)

### Introduction

Threatened, endangered, proposed and candidate species are identified by the U.S. Fish and Wildlife Service, which maintains up-to-date information regarding which of those species may be present on the Custer Gallatin.

### Desired Conditions (FW-DC-WLTEPC)

- 01** Custer Gallatin National Forest lands within critical habitats designated by the U.S. Fish and Wildlife Service provide the physical and biological features identified by the U.S. Fish and Wildlife Service as essential to the conservation and recovery of the species.
- 02** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range.



## *Canada Lynx (WLLX)*

### Introduction

The Canada lynx was listed as a threatened species by the U.S. Fish and Wildlife Service in 2000. As a result, the Northern Rockies Lynx Management Direction (NRLMD) was amended to existing Forest Plans in 2007. The NRLMD contains goals, objectives, standards and guidelines for managing lynx habitat on National Forest lands. However, the wording in the NRLMD is not always consistent with the definitions for plan components in the 2012 Planning Rule; for example, “objectives” in the NRLMD generally do not meet the “measurable and time specific” requirements of the 2012 Planning Rule, but rather are stated more like “desired conditions” or even “guidelines” under the 2012 Planning Rule. The Custer Gallatin plan includes by reference direction for managing Canada lynx habitat from the Northern Rockies Lynx Management Record of Decision (USDA Forest Service 2007). This direction includes plan components for management of a variety of resources, including vegetation management, livestock grazing, recreation, and others. If habitat management requirements changes due to updates in the status of the Canada lynx, modifications made to the NRLMD, development of a recovery plan, or other new developments in guidance, then Forest Plan components for lynx could change through amendment to this plan. Therefore, the current record of decision for the NRLMD is included as appendix G.

### Desired Conditions (FW-DC-WLLX)

- 01** Boreal forest habitats provide denning, foraging, resting and travel habitat for Canada lynx at a scale that approximates the size of a reproductive female’s home range; i.e., within a lynx analysis unit. Matrix habitats that occur between patches of boreal forest provide adequate cover to facilitate lynx movement between denning and foraging habitats within lynx analysis units, as well as dispersal between lynx analysis units.

## *Wolverine (WLWV)*

### Introduction

The wolverine was petitioned for listing under the Endangered Species Act in 2000. As a result, in February 2013 the U.S. Fish and Wildlife Service published a proposed rule to list the North American wolverine as a threatened distinct population segment in the contiguous United States (USDI U.S. Fish and Wildlife Service 2013, 2016). The wolverine is the largest land-dwelling member of the weasel family, and is well adapted to live in cold, snowy conditions. Consequently, wolverines are typically found at higher elevations, in alpine and subalpine habitats in the plan area. Wolverine habitat is patchily distributed across the plan area, and the species has a large home range relative to other mammals of similar body size. As a result, they naturally occur at low densities in the plan area. Wolverines on the Custer Gallatin Forest are part of a metapopulation, or a network of subpopulations occupying isolated patches of suitable habitat. Their persistence in the naturally fragmented habitat found at high elevations may be dependent on regular, or at least intermittent, dispersal of individuals amongst habitat islands to facilitate gene flow between subpopulations (Ruggiero et al. 2007).

### Desired Conditions (FW-DC-WLWV)

- 01** Large, relatively undisturbed blocks of forest and alpine habitat characterized by persistent snow cover and cooler temperatures are present to provide high quality reproductive habitat and denning and foraging opportunities for wolverines. High elevation habitat and associated micro-climates provide refugia for wolverines in the face of changing climates.

### Guidelines (FW-GDL-WLWV)

- 01** Management actions in maternal habitat for wolverines should avoid disturbance during the wolverine reproductive denning season (mid-February through mid-May).

### *Northern Long-eared Bat (WLNLB)*

#### Introduction

The northern long-eared bat was listed as a threatened species under the Endangered Species Act in April 2015 (USDI U.S. Fish and Wildlife Service 2015: *Federal Register*, volume 80, number 63). The Custer Gallatin is at the very western edge of this species' range; however, the U.S. Fish and Wildlife Service has determined the species may be present in the Ashland and Sioux Geographic Areas. In listing this species, the U.S. Fish and Wildlife Service issued a 4(d) Rule (USDI U.S. Fish and Wildlife Service 2016: *Federal Register*, volume 81, number 9) stating that white-nose syndrome is the primary threat and subsequent cause of the species' decline, and that the level of incidental take associated with on-going land management actions do not individually or cumulatively affect healthy bat populations. The 4(d) Rule specifically exempts incidental take of northern long-eared bats in areas that have not yet been impacted by white-nose syndrome, which (currently) includes the Custer Gallatin.

#### Desired Conditions (FW-DC-WLNLB)

- 01** The Custer Gallatin National Forest provides habitat that contributes to the long-term conservation of northern long-eared bats. Key habitats such as winter hibernacula and maternity roosts are free from disturbance and disease.

#### Standards (FW-STD-WLNLB)

- 01** Forest Service employees and agency-authorized personnel such as contractors, researchers and permittees, shall use established white-nose syndrome decontamination procedures prior to entering caves, mines or other features known to be used as winter hibernacula by northern long-eared bats.

#### Guidelines (FW-GDL-WLNLB)

- 01** In order to maintain vegetative conditions that may be associated with microclimates of winter hibernacula, tree removal through mechanical means or prescribed fire should not occur within 0.25 miles of known northern long-eared bat winter hibernacula at any time of year, except when hazard tree removal is needed to protect human life or property.
- 02** In order to protect young, vulnerable northern long-eared bats, vegetation management should not remove trees within 150 feet of known northern long-eared bat maternal roosts during the pup season of June 1 through July 31.

### Species of Conservation Concern

#### Introduction

Species of conservation concern include those species, other than federally recognized threatened, endangered, proposed or candidate species, that are known to occur in the plan area, and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area. The regional forester's list of terrestrial wildlife species of conservation concern for the Custer Gallatin is dynamic and

may be updated based on new information and/or changing conditions. The current list for the Custer Gallatin National Forest can be viewed at [www.fs.usda.gov/goto/R1/SCC](http://www.fs.usda.gov/goto/R1/SCC).

### *Prairie Dogs (WLPD)*

#### Introduction

Two species of prairie dogs are known to occur on the Custer Gallatin. Black-tailed prairie dogs are located in the Ashland Geographic Area, and adjacent to the Sioux Geographic Area, where they typically occur in small (generally less than 100 acres), but persistent colonies. Black-tailed prairie dogs were petitioned for listing under the Endangered Species Act, but the U.S. Fish and Wildlife Service determined the species did not warrant listing (USDI U.S. Fish and Wildlife Service 2009). The Custer Gallatin is at the very northern tip of the range for white-tailed prairie dogs, and this species is limited to one known colony in the plan area, located at the eastern fringe of the Absaroka Beartooth Mountains Geographic Area. Like its black-tailed relative, the white-tailed prairie dog was petitioned for listing under the Endangered Species Act, but again, the U.S. Fish and Wildlife Service determined the species did not warrant listing (USDI U.S. Fish and Wildlife Service 2010). However, due to its limited distribution, and threats such as susceptibility to plague, predation, and habitat conversion, the long-term persistence of the white-tailed prairie dog in the plan area is of concern. The two species of prairie dogs have similar habitat requirements and management issues, so are addressed together in the following plan components.

#### Desired Conditions (FW-DC-WLPD)

- 01** Prairie dog colonies contribute unique habitat conditions for a variety of prairie-associated wildlife species. Habitat for both white-tailed and black-tailed prairie dogs allows for colony expansion where desirable to promote biodiversity.
- 02** Black-tailed prairie dog colony expansion does not result in unwanted encroachment onto adjacent non-Federal lands.

#### Standards (FW-STD-WLPD)

- 01** Use of toxicants (e.g., rodenticides) shall not be permitted to control the spread of white-tailed prairie dog colonies.
- 02** New roads and other permanent facilities shall not be constructed within 100 feet of white-tailed prairie dog colonies.

#### Guidelines (FW-GDL-WLPD)

- 01** To maintain important ecological contributions of prairie dogs, non-lethal means should be implemented before lethal means to control the spread of black-tailed prairie dogs.
- 02** In order to limit disturbance to prairie dogs and other species associated with prairie dog colonies, new roads and other permanent structures should not be constructed within 100 feet of black-tailed prairie dog colonies, unless for the specific purpose of managing undesired colony expansion.

### *Greater sage-grouse (WLSG)*

#### Introduction

The greater sage-grouse is an upland game bird dependent upon the sagebrush steppe ecosystem. Due to habitat loss and other factors, greater sage-grouse have experienced rangewide population declines

for several decades, and the species was consequently petitioned for listing under the Endangered Species Act. Due at least in part to collaborative conservation efforts between state, Federal and private entities, the U.S. Fish and Wildlife Service determined that the species is not warranted for listing (USDI U.S. Fish and Wildlife Service 2015). Sage-grouse habitat is categorized as either priority or general habitat. Priority habitat includes those areas surrounding locations with the largest number of displaying male sage grouse on leks (USDI U.S. Fish and Wildlife Service 2013). Priority habitat within the plan area is located at the periphery of the Ashland and Sioux Geographic Areas. General habitat is the area that provides sage grouse habitat, but is not considered priority habitat. General habitat is identified across the plan area, but varies in proportion by landscape area, with the largest amounts in the Ashland, Pryor Mountains, and Sioux Geographic Areas.

#### **Desired Conditions (FW-DC-WLSG)**

- 01** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for food, cover, and nesting.

#### **Standard (FW-STD-WLSG)**

- 01** In greater sage-grouse priority and general habitat, vegetation management shall result in no net loss of habitat or be beneficial to greater sage-grouse.

#### **Guideline (FW-GDL-WLSG)**

- 01** In greater sage-grouse habitat, fire management tactics and strategies should minimize loss of existing sagebrush habitat using the safest and most practical means as determined by fireline leadership and incident commanders.
- 02** Wildfire rehabilitation projects in greater sage-grouse habitat at high risk of annual grass invasions should seed with an appropriate mixture to reduce the probability of cheatgrass establishment
- 03** New power transmission corridor infrastructure development should not be located in priority areas unless the infrastructure can be buried.
- 04** New recreation facilities such as roads, fences, campgrounds, picnic areas, etc. should not be constructed in priority or general sage-grouse habitat unless the development results in a conservation gain to the species and its habitat.
- 05** Vegetation management projects in general or priority sage-grouse habitat should be designed to remove or reduce invading conifers, control or stop the spread of invasive annual grasses, and reduce the extent of existing nonnative plants.
- 06** New range management structures (e.g., fences, stock tanks, etc.) should be designed and located to be neutral or beneficial to greater sage-grouse.
- 07** New energy developments should not be located in priority sage-grouse habitat, subject to valid existing rights.

## General Wildlife (WLGEN)

### Introduction

The vast majority of terrestrial wildlife species occurring on the Custer Gallatin are neither listed under the Endangered Species Act nor identified as species of conservation concern by the regional forester, and are therefore not included as species at risk. Most populations of wildlife species are expected to be maintained through application of coarse-filter plan components designed to maintain the key ecological characteristics that provide the habitat upon which those animal species depend. Some species that are not at-risk may warrant specific fine-filter plan components because of specific habitat needs, or because of the potential for management actions or other human activities to impact individuals or habitats.

### Goals (FW-GO-WLGEN)

- 01** Management actions are coordinated with other Federal, state and local agencies, Tribes, and adjacent land owners. Opportunities to manage wildlife habitat are expanded through coordination and collaboration along and across administrative boundaries.
- 02** Wildlife movement between National Forest parcels separated by other landownership is facilitated by management of the National Forest portions identified as key linkage areas through interagency coordination.
- 03** In locations identified as key linkage areas, non-Federal lands within the plan area boundary are acquired, or managed under conservation easements, through cooperation with willing landowners.
- 04** The Forest Service engages in partnerships with other entities (e.g., universities, non-governmental organizations, etc.) for ecological research and inventories that expand data/knowledge collection where needed.

### Guidelines (FW-GDL-WLGEN)

- 01** Management activities in key linkage areas should be designed to maintain or enhance habitat diversity to provide habitat connectivity for a variety of species.
- 02** Except where necessary to minimize bison human conflict, management actions should not create movement barriers to wide-ranging species such as medium to large carnivores and wild ungulates.
- 03** In the Montane Ecosystem, vegetation management projects on big game winter range should retain adequate coniferous forest cover (where it exists) to provide for snow intercept, hiding cover and/or thermal regulation for big game species. Exemptions may be made for the following reasons:
  - For research studies
  - For conifer removal from aspen stands to promote aspen regeneration or facilitate aspen stand maintenance
  - For removal of small conifers from areas that are desirable as grassland or shrubland types
  - For safety reasons such as fuel or hazard tree reduction around dwellings, developed sites, and/or administrative sites
  - For hazardous fuel reduction projects aimed at protecting nearby communities; for example within municipal watersheds

- Where long- and short-term benefits gained from improved forage for big game outweigh the costs of reducing snow intercept, hiding and/or thermal cover.
- 04** To avoid stressing wildlife when energy demands are high, management activities should be located and scheduled to minimize disturbance of native ungulates on winter ranges during the winter and in known calving, fawning, lambing or kidding areas during the reproductive season. Exceptions may occur when needed for protection of other resources. For example, winter harvest may be prescribed on or near important winter range to avoid impacts to sensitive soils or protect cultural sites. In such cases, management actions should be concentrated in time and/or space to reduce impacts to native ungulates.
  - 05** In areas identified by a Forest Service wildlife biologist as of particular concern for lack of secure habitat, new temporary roads should not result in a reduction of secure habitat during big game hunting seasons (generally September 1 through December 1). The intent of this guideline is to maintain secure habitat during a time when big game animals are vulnerable, and added pressure from hunting may cause displacement of native ungulates from public land.
  - 06** Management activities should avoid disturbance to known roosting, hibernating, or breeding bats in caves, mines, or other features known to be used by bats. Management actions such as mechanical harvest and prescribed burning, should not remove roost trees known to be occupied by maternal bat colonies. Roost trees may be removed once adults and young bats have moved on after the pup season, but replacement roost trees should be retained in the general vicinity to provide for maternal roosts in the future.
  - 07** If bats are observed roosting in or on buildings, bridges or other structures identified for removal or reconstruction, then demolition and/or construction activities should only occur once bats have left for the season. If facilities known to be used by bats are to be removed and not replaced, then bat structures should be installed to compensate for habitat loss.
  - 08** Bat-friendly closure devices should be used when mines or caves with suitable habitat for bats are to be closed for human safety reasons.
  - 09** Forest Service employees and agency-authorized personnel such as researchers, contractors, etc. should use precautionary measures (e.g., decontamination procedures, timing restrictions for cave entry) before entering known bat roosts or hibernacula, to prevent human-caused introduction or spread of disease (e.g., white-nose syndrome).
  - 10** Management activities should avoid disturbance at known active raptor nests during the breeding season. Raptors that establish nests near existing human use areas are assumed to be tolerant of the level of activity present when the nest was established.
  - 11** To protect airborne migratory species, new wind energy developments should be located and designed to minimize impacts to birds and bats.

### *Bison (WLBI)*

#### Introduction

The Yellowstone bison population is unique in that it contains thousands of individuals that exhibit wild behavior and roam relatively freely over a very large landscape (Blanton et al. 2015), part of which includes portions of the Custer Gallatin. As such, this bison population is of great importance to local, regional, national and Tribal forest visitors. Management of Yellowstone bison follows direction found in

the Interagency Bison Management Plan. Bison are currently located in the Madison, Gallatin and Henrys Lake Geographic Area and the Absaroka Beartooth Geographic Area.

#### Desired Conditions (FW-DC-WLBI)

- 01** Native bison have access to forage, security and movement corridors to facilitate distribution of the species to suitable habitats within state-approved tolerance zones.
- 02** Educational materials, including signage at trailheads and campgrounds where bison may occur, are available to help forest users understand bison behavior and avoid conflicts.

#### Goal (FW-GO-WLBI)

- 01** The Forest Service engages with state, Federal and Tribal partners to expand the science of bison ecology, improve social tolerance for the species on public land, and cooperatively develop adaptive strategies to manage bison and their habitats to facilitate natural movement of bison into suitable habitats within state-approved bison tolerance zones.

#### Guidelines (FW-GDL-WLBI)

- 01** Within bison tolerance zones, vegetation management projects that could improve bison habitat near residential or other high human use areas should be designed to minimize potential bison-human conflicts.
- 02** Except to minimize bison human conflict, management actions should not limit bison expansion into unoccupied habitat within state-delineated tolerance zones.

### *Grizzly Bear (WLGB)*

#### Introduction

The grizzly bear was listed as a threatened species under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531), in the lower 48 states. The Grizzly Bear Recovery Plan (USDI U.S. Fish and Wildlife Service 1982, revised 1993) delineated grizzly bear recovery zones in six mountainous ecosystems in the United States, including the Greater Yellowstone Ecosystem. Grizzly bears that occur in the plan area are part of the Greater Yellowstone Ecosystem population. On June 30, 2017, the U.S. Fish and Wildlife Service published a final rule to delist (remove from the endangered species list) the Greater Yellowstone Ecosystem population of grizzly bears (USDI U.S. Fish and Wildlife Service 2017: *Federal Register*, volume 80, number 125).

In order to remove a species from the Endangered Species List, the U.S. Fish and Wildlife Service must show that adequate regulatory mechanisms are in place to ensure effective management of the species and its habitat post-delisting. Such regulatory mechanisms are outlined in the Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem (USDI U.S. Fish and Wildlife Service 2016). This conservation strategy was developed by an interagency team consisting of representatives from the Interagency Grizzly Bear Study Team, National Park Service, U.S. Forest Service, U.S. Fish and Wildlife Service, and State wildlife management agencies. This team brought a wealth of knowledge and experience to the table, and developed the conservation strategy using their combined expertise, as well as drawing on the best available scientific research relative to grizzly bear conservation and management. Incorporation of 2016 Conservation Strategy habitat standards into legally enforceable national forest land management plans provide the regulatory mechanisms necessary to delist the species (USDI U.S. Fish and Wildlife Service 2017). The following plan components formally adopt habitat standards from the Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem

(USDI U.S. Fish and Wildlife Service 2016) into the Custer Gallatin Forest Plan. The plan components apply to the Primary Conservation Area (see map, appendix B)

### Desired Conditions (FW-DC-WLGB)

- 01** Inside the Primary Conservation Area, grizzly bears, including reproductive females, are present with sufficient distribution to be resilient to stressors and adaptable to changing conditions. Habitat conditions associated with availability of secure areas, presence of developed sites, and the amount of livestock grazing, are commensurate with, or improved (for bears) relative to levels that existed in 1998, when the species first met recovery criteria.
- 02** Outside the Primary Conservation Area, grizzly bears occur where habitat is biologically suitable and grizzly bear occurrence is socially acceptable. Availability of secure habitat contributes to habitat connectivity, which facilitates grizzly bear movement between the Greater Yellowstone Area and other grizzly bear ecosystems.
- 03** Bear awareness information is available to Forest users and there are few bear-human conflicts.

### Objectives (FW-OBJ-WLGB)

- 01** Identify at least five potential relocation sites for grizzly bears within the plan area by 2020. Relocation sites are evaluated for appropriateness, and updated if necessary, every 2 years.

### Standards (FW-STD-WLGB)

- 01** Inside the Primary Conservation Area, management actions shall not reduce the percent of secure habitat in each bear management subunit below 1998 baseline levels (appendix A; table A-1). For subunits identified in the 2007 Conservation Strategy as needing improvement above 1998 levels (Gallatin #3, Henrys Lake #2, and Madison #2), management actions shall not reduce the percent of secure habitat below levels attained from full implementation of the 2006 Gallatin National Forest Travel Management Plan (appendix A; table A-1). Management actions that result in temporary or permanent reduction in secure habitat below the applicable baseline shall follow the application rules listed below.
- 02** *Permanent Changes in Secure Habitat.* Construction of new motorized routes (roads or trails), reconstruction of existing motorized routes, or opening of a previously decommissioned route in the Primary Conservation Area shall meet the following conditions:
  - Replace any loss in secure habitat below baseline levels by restoring secure habitat of equivalent quality and quantity (e.g., through decommissioning) in the same bear management subunit. Habitat quality must be assessed based on the best collective scientific understanding of grizzly bear habitat ecology and the rationale for all mitigation measures must be fully documented.
  - Replacement habitat must be in place before project implementation or concurrent with project development as an integral part of the project plan. Replacement habitat must remain in place for a minimum of 10 years before it can be subsequently replaced and mitigated for per the application rules (this duration is based on the approximate generation time of a female grizzly bear, or the time it takes to replace herself in the population).
  - For activities based on statutory rights, such as the 1872 General Mining Law, where permanent reductions in secure habitat cannot be replaced within the affected subunit, then secure habitat must be compensated at a commensurate level at or above the baseline in the nearest possible subunit. Subsequent changes to secure habitat in the two affected subunits will then constitute permanent changes to the baseline.



- Proposed applications for permit to drill and operating plans within existing oil and gas or other mine leases shall meet the application rules for changes to secure habitat. New leases, applications for permit to drill, and operating plans shall meet the secure habitat standards.

**03 *Temporary Changes in Secure Habitat.*** Project activities shall meet the following conditions for temporary reductions in secure habitat below baseline:

- Only one project affecting secure habitat may be active within a given bear management subunit at any one time.
- Total acreage of secure habitat affected within a given bear management unit shall not exceed 1 percent of the acreage in the largest subunit within that bear management unit. The acreage of a project that counts against the 1 percent limit (i.e., the amount of secure habitat affected) is measured as the acreage within the 500-meter buffer around any temporary motorized access route or low-level helicopter flight line that intrudes into existing secure habitat.
- New temporary roads shall be limited to administrative purposes associated with project activities. Project activities shall not reduce secure habitat below baseline levels for more than four consecutive years. The collective set of temporary roads that affect secure habitat below baseline levels shall be closed to all motorized use after 3 years. Temporary roads shall be decommissioned such that secure habitat is restored within 1 year after closure.

**04 *Developed Sites.*** Inside the primary conservation area, the number and capacity of developed sites must be maintained at or below 1998 baseline levels. Changes to existing, or construction of new developed sites, shall meet the following conditions:

- Construction of new sites or additions to existing sites must be mitigated for within the affected subunit to offset any increase in the number of developed sites and/or capacity for human use, habitat loss, and increased access to surrounding habitats.
- Mitigation for new sites or increased capacity must be in place before the project begins, or included as an integral part of project implementation.
- Consolidation and/or elimination of dispersed campsites provides adequate mitigation for increases in human capacity at developed campgrounds if the additional developed site capacity is less than or equal to that of the previous dispersed camp sites, and if future overnight use of the dispersed site(s) is definitively curtailed.
- Conversion of uncontrolled dispersed campsites to a minor day-use site shall result in a net benefit to both human and bear safety and shall modify the dispersed site(s) to definitely curtail future over-night use. Such modification of site-use would not contribute to an increase in baseline developed sites.
- Expansion (in capacity and/or acreage) of existing administrative sites is exempt from mitigation if such developments are deemed necessary for enhancement of public land management and other viable alternatives are not available.
- Food storage structures and management must be in place and all other factors resulting in potential detrimental impacts to grizzly bears will be mitigated as identified for developed sites other than temporary work camps.
- Modifications to existing developed sites shall reduce resource damage, detrimental environmental impacts, and/or the potential for grizzly bear conflicts (e.g., installing a vaulted toilet to avoid damage to water resources, or installing bear-resistant storage structures to reduce conflict).

- Modifications to dispersed campsites shall reduce resource damage, detrimental environmental impacts, and/or the potential for grizzly bear conflicts (e.g., installing bear-resistant storage structures and limiting parking expansion). Such modifications do not require mitigations as long as they are not permanent or irretrievable.
- For new activities based in statutory rights (e.g. 1872 General Mining Law, Americans with Disabilities Act), if the number of developed sites exceeds the 1998 baseline the Forest Service shall, to the fullest extent of its regulatory authority, reduce developed sites to commensurate levels and mitigate to offset any increases in human capacity, habitat loss, and increased access to surrounding habitat within the affected subunit if possible. In cases where mitigation cannot be accomplished within the affected subunit, commensurate compensation will be accomplished in the nearest subunit and changes in the two affected subunits become permanent changes to the baseline.

**05 Livestock Grazing Allotments.** Inside the primary conservation area, there shall be no increase in the number or acreage of domestic livestock grazing allotments above that which existed in 1998 (see Appendix A, “Permitted Livestock Grazing” section for 1998 baseline allotment information). Changes in livestock allotments inside the Primary Conservation Area shall meet the following conditions:

- A vacant allotment may be issued an active permit (i.e., re-activated) resulting in an increase in the number of permitted cattle as long as the number and net acreage of active allotments inside the Primary Conservation Area does not exceed the 1998 baseline.
- Combining or dividing existing allotments is allowed as long as the number and net acreage of active allotments inside the Primary Conservation Area does not exceed the 1998 baseline.

#### Guidelines (FW-GDL-WLGB)

**01 Temporary Changes in Secure Habitat.** Project activities should meet the following conditions for temporary reductions in secure habitat below baseline:

- Project activities should be concentrated in space and time to minimize disturbance.

**02 Developed Sites.** Inside the primary conservation area, changes to existing, or construction of new developed sites should meet the following conditions :

- Temporary work camps associated with major projects or emergency response should be placed in low grizzly bear use areas to minimize disturbance and displacement of bears as well as to reduce risk of bear-human conflicts.
- For proposed applications for permit to drill, and new or revised operating plans within existing oil and gas and other mineral leases, the Forest Service should, to the fullest extent of their regulatory authority, strive to meet the developed site standard. New leases, applications for permit to drill, and operating plans must meet the developed site standard.

#### Suitability (FW-SUIT-WLGB)

**01** The Primary Conservation Area is not suitable for increased number or acreage of active commercial livestock grazing allotments above that which existed in 1998, is not suitable for re-activation of closed sheep allotments, or conversion of existing cattle or horse allotments to sheep allotments

**02** Secure habitat inside the Primary Conservation Area is suitable for the following activities:

- Activities that do not require route construction or reconstruction, re-opening of a permanently closed road, or recurring low-level helicopter flight lines.
- Helicopter use for short term (no more than 2 days in the duration of a project), or at higher elevations (at least 500 meters above ground level with no landing). Aircraft used in emergency firefighting are allowed.
- Non-wheeled, over-the-snow use (e.g., snowmobile) unless new research identifies a threat. Conflicts associated with winter-use activities that develop either during denning or after den emergence in the spring should be addressed with local area restrictions.
- Access to power lines and/or utility corridors for occasional and necessary maintenance service that does not require new route construction and is used only for administrative purposes related to power line/utility maintenance.
- Project activities (e.g., temporary road construction and maintenance, or use of recurring low-level helicopter flights) that occurs entirely during the grizzly bear denning season (December 1 to February 28).

## Benefits to People: Multiple Uses and Ecosystem Services

### Introduction

Social, cultural, and economic resources on the Custer Gallatin National Forest contribute to the social and economic sustainability of local communities and the public. The 2012 Planning Rule calls those resources “ecosystem services” or, put more simply, the benefits people obtain from the Forest. Healthy forest ecosystems are life-supporting systems that provide a full suite of goods and services that are vital to human health, financial sustainability, and wellbeing. These “ecosystem services” or benefits include all the multiple uses that people traditionally have relied on, such as recreation and mineral extraction, as well as less obvious or apparent benefits, such as clean air and carbon sequestration. Multiple use is defined by the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531). Other sections of this plan, such as water quality, air quality, and recreation also provide plan direction that contribute benefits to people.

The 2012 Planning Rule also requires that forests take an all-lands approach to ensure that ecological sustainability and contributions to social and economic sustainability are considered in the context of the larger landscape. This involves managing the plan area in partnership with both public and private land owners and stakeholders to ensure management efforts are coordinated whenever possible. Included in this section are plan components related to partnerships and coordination.

## General Contributions to Society and Economic Sustainability (SUS)

### Introduction

Social sustainability refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 Code of Federal Regulations 219.19).

Economic sustainability refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and markets and nonmarket benefits.

Executive Order No. 12898 on Environmental Justice (issued February 11, 1994), mandates Federal agencies to make achieving environmental justice part of their mission. This includes identification and

response to disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Environmental justice communities are those identified as having significant minority and/or low-income demographics. Areas influenced by the Custer Gallatin that meet this definition include the Crow Indian Reservation and the Northern Cheyenne Indian Reservation, as well as high poverty areas located north of the Indian reservations in northwestern South Dakota.

### Desired Conditions (FW-DC-SUS)

- 01** Key Forest benefits including: clean air, clean water and aquatic ecosystems, terrestrial ecosystems, education and volunteer programs, flood control, infrastructure, forest products, mineral and energy resources, historic, cultural, Tribal or archeological sites, geologic features, grazing, scenery, recreation and designated areas contribute to the well-being, quality of life and health and safety of the public.
- 02** Sustainable levels of Forest provided goods and services (e.g., wilderness, fish and wildlife, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of Forest communities.
- 03** Ecosystems structures and functions provide for clean air and water; desirable recreation and tourism opportunities; forest products; livestock forage; plant and animal food supplies, carbon sequestration, water storage; and mineral and other energy resources.

### Goals (FW-GO-SUS)

- 01** Engagement with local agencies, partner organizations and the public is a central part of ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.

## Areas of Tribal Importance (TRIBAL) (American Indian Rights and Interests)

### Introduction

Sacred sites and traditional cultural properties have religious and/or traditional importance to individuals or cultural groups. Traditional cultural properties are managed under the authority of the National Historic Preservation Act. They are, by definition, eligible for listing on the National Register and must be a tangible property, that is, a district, site, building, structure, or object as defined in 36 Code of Federal Regulations 64.4.

Sacred sites important to Native Americans are managed under the authority of Executive Order 13007: Indian Sacred Sites. It is the responsibility of a Native American Tribe or Native American individual to identify sacred sites. Executive Order 13007 defines a Native American/Indian sacred site as “any specific, discrete, narrowly delineated location on Federal land that is...determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian Tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.” Consultation on the government-to-government-level with Indian Tribal Governments has increased with provisions in the 2008 Farm Bill for the collection of forest products for traditional and cultural purposes; the Forest Service Sacred Land policy constructed to implement Executive Order 13007; and Executive Order 13175 that addresses consultation and coordination with Indian Tribal Governments.

Historical data on Tribal distribution indicates that a number of Tribal peoples have documented cultural or historical affiliation and associations with the lands now under the stewardship of the Custer Gallatin. At least 16 Tribes have aboriginal ties to the Forest and have expressed an interest in the management of the Forest. These Tribes include the Crow; the Northern Cheyenne; the Fort Peck Assiniboine and Sioux Tribes; the Eastern Shoshone and the Northern Arapahoe, Fort Washakie; The Fort Hall Shoshone-Bannock; the Three Affiliated Tribes, Mandan, Hidatsa, and Arikara; the Rosebud Sioux, Cheyenne River Sioux, Lower Brule Sioux, Standing Rock Sioux of the Great Sioux Nation, The Confederated Salish and Kootenai Tribes and the Nez Perce Tribe. Some Tribes have reserved treaty-protected rights while others have rights established by Executive order or statute. Among the items reserved by Tribes in exchange for land, are the right to hunt, gather, and fish in a manner that would allow them to maintain their way of life on open and unclaimed lands. “Open and unclaimed lands” may include public lands outside of the Tribe’s ceded territory. National Forest lands are generally held to be “open and unclaimed”.

### Desired Conditions (FW-DC-TRIBAL)

- 01** Culturally significant species and the habitat necessary to support healthy, sustainable, and harvestable plant and animal populations support rights reserved by Tribes in treaties.
- 02** Forest resources are available for collection by Tribal members with treaty rights.
- 03** Tribal members have access to sacred sites and landscapes within the Forest and for the exercise of reserved treaty rights and cultural uses.

### Goals (FW-GO-TRIBAL)

- 01** Cultural landscapes, sacred sites and other culturally significant areas identified by Tribes provide tangible links to historically rooted beliefs, customs and practices and are maintained and managed through coordination with the appropriate Tribes.

### Standards (FW-STD-TRIBAL)

- 01** Requests from Indian Tribes with ties to the Forest for temporary closures for cultural and traditional purposes shall be facilitated subject to valid existing rights and other ongoing or permitted activities.
- 02** New developments and land management activities shall avoid, minimize, or mitigate potential conflict with Forest resources used for traditional cultural practices.

## Cultural and Historic Resources (CR)

### Introduction

Numerous laws, regulations, and policies govern the use and administration of cultural resources on national forest lands. Some are more commonly used regulations, such as the Archaeological Resource Protection Act, the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, and the American Religious Freedom Act. National laws and regulations are also interpreted in Forest Service manuals, handbooks, and regional guides.

Over 4,500 archaeological, traditional cultural properties, and historic sites are recorded on the Forest. Of these recorded sites, 357 are considered priority assets. “Priority assets” is a special Forest Service category that demonstrate a distinct value to the Forest and are, or should be actively maintained. The Forest also has 48 historic properties, 5 individual, and 43 as multiple listings, listed on the National Register of Historic Places and one proposed archaeological and traditional use National Register District. The Nez Perce National Historic Trail, commemorating the flight of members of the Nez Perce Tribe in 1877, also crosses the Forest on the west border. In addition to these historic properties, 541 sites are

listed as eligible for nomination to the National Register of Historic Places, and 176 have been found not eligible for nomination to the National Register of Historic Properties.

#### **Desired Conditions (FW-DC-CR)**

- 01** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices.
- 02** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.
- 03** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.

#### **Objectives (FW-OBJ-CR)**

- 01** Annually conduct five or more public outreach or interpretive projects that enhances public understanding and awareness of cultural resources and/or history of the Forest.
- 02** Annually manage to standard 20 percent of the priority assets, based on available budgets. Every 5 years all priority assets will have updated condition assessments.

### **Permitted Livestock Grazing (GRAZ)**

#### **Introduction**

Livestock grazing on national forest lands is an important contribution to the social and economic importance of rural communities and to the associated traditional cultural landscapes. Forest grazing allotments are managed to be responsive to current Federal and state environmental laws and regulations. Allotment management plans describe the kind and amount of livestock, season of use, structural improvement maintenance, resource management objectives, and prescriptions to maintain or improve natural resources.

Livestock grazing is an important source of income along with other diverse agricultural enterprises in the nine county area associated with Custer Gallatin allotments. Primary rangelands occur on about 22 percent of the Forest with 216 active allotments and 199 permittees.

Rangelands used for permitted livestock grazing are predominantly natural grasslands, shrublands; riparian, wetlands, deciduous woodlands, and pine savannas. Management practices used in allotment management include deferment and rest from grazing, vegetation treatments, infrastructure to control and distribute livestock, and conservation measures to meet or move toward desired conditions.

Forest Service policy direction for permitted livestock use is found in agency manuals (FSM 2200) and handbooks. Existing grazing allotments in wilderness areas are to be managed in accordance with wilderness values. Wilderness area grazing direction is found in FSM 2323.2, which includes direction from H.R. Report No. 96-1126, dated June 24, 1981.

Desired conditions for rangelands (such as grasslands, shrublands, riparian, wetlands, deciduous woodlands, pine savannas) are outlined in the “Terrestrial Vegetation” section, “Invasive Species” section, and the “Watershed, Aquatic, and Riparian” sections of this Plan.

#### **Desired Conditions (FW-DC-GRAZ)**

- 01** Sustainable grazing opportunities are available for livestock on suitable lands.

### Standards (FW-STD- GRAZ)

- 01** New or revised allotment management plans shall design grazing practices (such as stocking levels, duration, timing), and/or physical structures (such as off-site water developments or hardened stream crossings) to avoid, minimize, or mitigate adverse livestock related effects to riparian areas, uplands, and associated flora and fauna.
- 02** New permitted grazing by domestic sheep or goats shall not be authorized within 9 air miles of bighorn sheep herd areas.

### Guidelines (FW-GDL- GRAZ)

- 01** New or revised allotment management plans should be designed to maintain stream habitat and water quality by minimizing sediment delivered to watercourses and degradation to streambank stability from livestock grazing in riparian areas.
- 02** The purpose of this guideline is to maintain or improve riparian aquatic habitat and achieve riparian habitat desired conditions specific to the ecological site over time through adaptive management. New grazing authorizations and reauthorizations that contain low gradient, alluvial channels should require that end of season stubble height be 10 to 15 centimeters (4 to 6 inches) along the greenline. However, application of the stubble height numeric value range should only be applied where it is appropriate to reflect the site capability for the specific geo-climactic, hydrologic, and vegetative conditions where it is being applied. Alternative use and disturbance indicators and values, including those in current ESA consultation documents, may be used if they are based on relevant science and monitoring data and meet the purpose of this guideline. Long-term monitoring and evaluation should be used to adapt this numeric range and/or the use of other indicators.
- 03** On big game winter range, new or revised allotment management plan prescriptions should be designed to meet big game forage needs in coordination with other uses.
- 04** Salt and/or supplement placement should not be within 0.25 mile of groundwater-dependent ecosystems, streams, water developments, aspen stands, green ash draws, special habitats and/or populations of at-risk plant species that are susceptible to livestock impacts.
- 05** New allotment infrastructure should be located to minimize livestock impacts on aspen, woody draws, riparian areas, groundwater-dependent ecosystems and at-risk plant species.
- 06** New and reconstructed gates should be designed and installed to be easily opened and closed by most users.
- 07** New fences and reconstruction of existing fences should be located and designed to minimize collision hazards for wildlife and to prevent barriers to wildlife movement.
- 08** New or reconstructed water developments should be designed to be wildlife friendly and to facilitate animal escape.
- 09** New locatable/leasable mineral development should use specific mitigation measures to reduce impacts on livestock distribution and forage values from surface-disturbance activities. Existing range improvements should be relocated as necessary to accommodate new mineral development.

## Timber (TIM)

### Introduction

Harvest of timber on national forest lands occurs for many different reasons, including ecological restoration, community protection in wildland-urban interfaces, habitat restoration, protection of municipal water supplies; and to contribute to economic sustainability through the production of timber, pulp for paper, specialty woods for furniture, or fuel as a renewable energy source. Timber harvest, whether for regularly scheduled wood production or for restoration and other reasons, supports local businesses and employment.

### Suitability for Timber Production

Timber production is defined as the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. The 2012 Planning Rule requires identification of lands that are suited and not suited for timber production based on factors that include legal withdrawal (for example, timber production prohibited due to statute, executive order, etc.), technical factors (nonforested lands, geology or soil conditions, etc.), and compatibility with desired conditions and objectives stated in the plan (plan components). Therefore, in lands suitable for timber production, regularly scheduled timber harvest is compatible with the achievement of the desired conditions and objectives in the plan and some regular flow of timber products is expected to occur. Table 2-13 displays the acres of timber production suitability classification for the proposed action.

**Table 2-13. Timber production suitability classification (acres)**

Land Classification Category	Acres
A. Total national forest lands in the plan area	3,039,273
B. Lands not suited for timber production due to legal or technical reasons	2,353,587
C. Lands that may be suited for timber production (A–B)	685,685
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	573,503
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	112,182
F. Total lands not suited for timber production (B+E)	2,465,769

### Sustained Yield Limit

Per the National Forest Management Act and planning rule regulations, the total quantity of saw timber that may be sold from all lands (excluding salvage or sanitation harvest volume) must be less than or equal to the potential sustained yield limit. The sustained yield limit is the amount of timber meeting applicable utilization standards, “which can be removed from [a] forest annually in perpetuity on a sustained-yield basis” (National Forest Management Act at section 11, 16 United States Code 1611; 36 Code of Federal Regulations 219.11(d)(6))). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production (line C from Table 2-13). Calculation of the sustained yield limit includes volume from lands that are identified as not suitable for timber production during the planning process because timber production would not be compatible with desired conditions or objectives established in the plan (line E in Table 2-13).

Initial modelling efforts indicate the potential sustained yield limit would be of 10.27 million cubic feet average annual volume (approximately 46.4 to 53.2 million board feet). This represents the biological



capability for the land base on which it was calculated, unconstrained by budgets assumptions or land management plan desired conditions.

The sustained-yield limit is simply the upper limit of timber harvest that could be offered. Actual sale levels depend on any number of factors including fiscal capability of the planning unit, timber market conditions, constraints on timber harvest in the forest plan, and project-level analysis.

### Projected Wood and Timber Sale Quantities

To clearly display the intended timber program associated with achieving ecological, social, and economic desired conditions, the revised plan is required to identify the projected wood sale quantity and projected timber sale quantity. The projected wood sale quantity is the estimated output of timber and all other wood products (such as fuelwood, firewood, or biomass) expected to be sold during the planning period for any purpose (except salvage harvest or sanitation harvest) on all lands on the Forest. The projected timber sale quantity is the portion of the projected wood sale quantity that meets applicable utilization standards (the sawlog portion of offered timber sales). Table 2-14 displays the key characteristics of the different timber volume metrics.

**Table 2-14. Characteristics of the timber volume metrics**

	<b>Sustained Yield Limit (SYL)</b>	<b>Projected Wood Sale Quantity (PWSQ)</b>	<b>Projected Timber Sale Quantity (PTSQ)</b>
Based on lands that may be suitable for timber production (line c; Table 2-13).	Yes	No	No
Based on quantity sold from all lands in plan area.	No	Yes	Yes
Based on the assumption that all lands that may be suitable for timber production are managed for timber production.	Yes	No	No
Limited by plan components, fiscal capability, and organizational capacity.	No	Yes	Yes
All volume meets utilization standards.	Yes	No	Yes
Includes salvage or sanitation harvest volume.	No	No	No
Varies by alternative in Plan EIS.	No	Yes	Yes

Neither the projected wood sale quantity nor the projected timber sale quantity serve as management targets or as limitations on harvest. Rather, both are based on reasonable expectations about the fiscal capability and organizational capacity to achieve the desired conditions and objectives in the revised plan for the planning period. As such, calculation of these volume estimates are sensitive to a number of important assumptions including future budget trends, future markets for timber products, efficiency in planning and implementation, and the timing and locations of large disturbance events. If additional support to achieve desired conditions was provided through opportunities such as increased congressional allocations, stewardship contracting, or work with partners through the Good Neighbor Authority, the potential wood and timber sale quantity identified in the revised plan could be exceeded. Conversely, if available resources, markets, or other factors are less favorable than anticipated, the potential wood and timber sale quantities identified may not be met.

Given the wide range of assumptions necessary for the preliminary analysis conducted for the proposed action, both the projected wood and timber sale quantities are expressed as a range, reflecting reasonably foreseeable futures scenarios.

When considering a range of potential management priorities for achieving desired conditions within the fiscal capability of the Forest, initial modeling efforts calculated a projected timber sale quantity ranging from approximately 1.06 to 2.70 million cubic feet annual average volume in the first decade of the plan period (6 to 15 million board feet average annual volume). The projected wood sale quantity is estimated at a range of approximately 2.55 to 4.56 million cubic feet average annual volume in the first decade of the plan period (14.2 to 25.3 million board feet).

To identify the highest sustainable harvest level possible within the constraints of the proposed action desired conditions and other plan components, additional modelling was calculated without fiscal constraints. These preliminary modelling efforts indicate a harvest level range of approximately 5.79 to 6.41 million cubic feet annual average volume in the first decade of the plan period (28 to 33 million board feet average annual volume) would potentially support a balance of ecological, social, and economic desired conditions if funding were not considered as a limiting factor.

These initial model numbers may change with continued analysis, but they provide an indication of potential alternatives to display the ecological and socioeconomic effects of a range of harvest levels with and without budgetary limitations.

#### **Desired Conditions (FW-DC-TIM)**

- 01** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also achieving ecosystem health and sustainability.
- 02** Although natural disturbances (for example, wildfire, insects, and disease) occur on lands suitable for timber production, these lands are resistant to disturbance, minimizing the economic loss of the timber resource.
- 03** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies.
- 04** Timber harvest from the Custer Gallatin National Forest contributes to maintaining regional timber harvesting and processing infrastructure.

#### **Objectives (FW-OBJ-TIM)**

- 01** Annually offer timber (meeting timber product utilization standards) for sale at an average projected timber sale quantity of 1.06 to 2.70 million cubic feet (6 to 15 million board feet), measured on a decadal basis.
- 02** Annually offer wood products (including fuelwood, biomass, and other volumes that do not meet timber product utilization standards) for sale at an average annual projected wood sale quantity of 2.55 to 4.56 million cubic feet (14.2 to 25.3 million board feet), measured on a decadal basis.
- 03** Annually complete vegetation management treatments (e.g., timber harvest, planned ignitions, thinning, planting) on 6,000 to 9,000 acres of the Forest, measured on a decadal basis, to maintain or move towards achieving desired conditions for forest and grassland ecosystems.

## Standards (FW-STD-TIM)

- 01** Harvest for purposes of timber production shall occur only on those lands classified as suitable for timber production.
- 02** Timber shall not be harvested on lands where soil, slope or other watershed conditions may be irreversibly damaged, as identified in project specific findings.
- 03** Silvicultural treatments shall be selected based on their ability to meet desired conditions and not be selected based solely on their ability to provide the greatest dollar return or output of timber.
- 04** Clearcutting shall be used as a harvest method only where it has been determined to be the method most appropriate to meet the purpose and need of the project outcome. Other types of even-aged harvest shall be used only where determined to be appropriate. Determinations shall be based on an interdisciplinary review of site-specific conditions and the desired conditions for vegetation, wildlife habitat, scenery, and other resources.
- 05** Timber harvest units shall be shaped and blended to the extent practicable with the natural terrain.
- 06** Even-aged stands shall generally reach a minimum of 95 percent of culmination of mean annual increment, as measured by cubic volume, prior to regeneration harvest, unless at least one of the following conditions have been identified during project development:
  - When such harvesting would modify fire behavior to protect identified resource, social or economic values
  - When harvesting of stands will trend landscapes toward vegetation desired conditions
  - When harvest uses uneven-aged silvicultural systems, thinning, or other intermediate stand treatments that do not regenerate even-aged or two-aged stands
  - When harvest is for sanitation or salvage of timber stands that have been substantially damaged by fire, windthrow, or other disturbance or which are in imminent danger from insect or disease attack
  - When harvest is on lands not suited for timber production and the type and frequency of harvest is due to the need to protect or restore multiple use values other than timber production
- 07** The quantity of timber that may be sold per decade from lands both suitable and not suitable for timber production shall not exceed the sustained yield limit 10.27 million cubic feet average annual volume (approximately 46.4–53.2 MMBF) with the exception of salvage or sanitation cutting of trees that are damaged by fire, windthrow, or other disturbance or to manage insect infestation or disease spread. Salvage harvest of such trees may be harvested above the sustained yield limit, where such harvest is consistent with desired conditions for terrestrial and aquatic ecosystems.
- 08** Openings created by clearcutting, seedtree cutting, shelterwood seed cutting, or other cuts designed to regenerate an even-aged stand of timber in one harvest operation shall not exceed 40 acres. This standard applies to new, individual harvest proposals on national forest lands only and need not consider existing openings on national forest land, adjacent private or other agency lands. Exceptions to the 40-acre maximum opening size may occur when determined necessary to achieve desired ecological conditions for the plan area, such as those associated with forest patterns, patch sizes, and forest resilience in the short and long term. Maximum opening size under this exception is shown in Table 2-15 below.

**Table 2-15. Maximum opening sizes for regenerating an even-aged stand of timber in a single harvest operation**

Broad Potential Vegetation Type	Maximum Opening Size (acres) <sup>1</sup>
Warm Dry	75
Cool Moist	80
Cold	50

<sup>1</sup> The maximum opening sizes are consistent with the natural range of variation for the average patch size of early successional forests, based on an analysis conducted with SIMPPLE.

- 09** Harvest openings created as a result of a single harvest operation that exceed the exception to the maximum opening size shall require 60-day public review and regional forester approval.
- 10** The maximum opening size displayed in FW-STD-TIM-08 and the 60-day public review and regional approval process shall not apply to the size of harvest openings created as a result of natural catastrophic disturbances, such as fire, windstorms, or insect and disease infestations.
- 11** To maintain forest cover, timber harvest shall only be used when there is reasonable assurance of restocking within 5 years after final regeneration harvest. Restocking level is prescribed in a site-specific silvicultural prescription for a treatment unit and is determined to be adequate depending on the objectives and desired conditions for the plan area. In some instances, such as when stands are treated to reduce fuel loadings, to create openings for scenic vistas, or to prevent encroaching trees to meet desired vegetation or wildlife habitat conditions, it is acceptable not to restock or restock at low tree densities.

#### Guidelines (FW-GDL-TIM)

- 01** Salvage harvest in areas burned by wildfire should retain some unburned patches and patches burned at low severity (less than 20 percent tree mortality) to contribute to ecosystem and wildlife habitat diversity.
- 02** Salvage harvest in areas burned by high severity wildfire should retain clusters of burned trees of a variety of sizes, including large and very large sizes (greater than 15 inches DBH) to provide habitat for wildlife species associated with burned habitats.

#### Suitability (FW-SUIT-TIM)

- 01** On lands not suitable for timber production, timber harvest may be used to achieve multiple use objectives unless timber harvest is specifically not allowed due to land designation (e.g., wilderness). Timber harvest may achieve or protect multiple-use purposes such as salvage of dead or dying trees, hazardous fuels reduction, forest insect or disease mitigation, to trend conditions towards desired stand or landscape vegetation composition, structure, and patterns, maintenance or enhancement of wildlife habitat, to perform research or administrative studies, to address issues of public safety and health, or for recreation and scenic-resource management.

## Energy and Minerals (EMIN)

### Introduction

The Custer Gallatin National Forest has a long history of mineral exploration and extraction starting in the 1860s when precious and base minerals such as gold, silver, copper, and chromium were discovered in a variety of locations throughout the mountain portions of the Forest. Similarly, the eastern portions of the Forest hosted turn of the century mineral extractions associated with discovery and production of

energy minerals such as coal, oil, and natural gas. The Forest also contains widespread deposits of mineral materials suitable for use in construction and infrastructure maintenance projects. The Custer Gallatin National Forest hosts geologic hazards and geologic resources which are very unique and offer special considerations during their use and/or management.

There are three types of mineral and energy resources:

- *Locatable minerals*: include commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc., and some nonmetallic minerals such as asbestos, gypsum, and gemstones. Under the Mining Law of 1872 (as codified by 36 Code of Federal Regulations 228), U.S. citizens are guaranteed the right to prospect and explore lands reserved from the public domain and open to mineral entry. The disposal of these commodities is non-discretionary.
- *Salable minerals*: include common varieties of sand, stone, gravel, cinders, clay, pumice, and pumicite. The Forest Service has the authority to dispose of these materials on public lands through a variety of methods. The disposal of these materials is discretionary.
- *Leasable minerals*: include commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and solid leasable minerals on acquired lands. Areas of the Forest are open to leasable minerals exploration, development, and production. Currently there are 18 suspended oil and gas leases covering approximately 40,849 acres on the Forest. No activity can take place on the leases until a site-specific environmental impact statement is completed. A leasing decision will not be a part of this proposed action. The disposal of these mineral resources is discretionary.

A part of the Forest Service's mission is to encourage, facilitate, and administer the orderly exploration, development, and production of mineral and energy resources on national forest lands to help meet the present and future needs of the Nation. Existing Federal law, regulation, and legal decisions guide much of how or if particular minerals and energy management actions should take place. Plan components do not reiterate overarching Federal law, regulation, and policy which must be implemented. The energy and minerals plan components provide further clarity and specificity as to how or if particular minerals and energy management actions should take place.

All mineral and energy management activities on national forest lands are required to meet applicable environmental protection measures as required by law, regulation, and policy. Proposed mineral and energy activities are subject to review and approval, as well as environmental analysis, review, reclamation and monitoring.

#### Desired Conditions (FW-DC-EMIN)

- 01** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity.
- 02** Areas with renewable energy generation (hydropower, solar and wind energy) potential are available for these uses in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity.
- 03** Abandoned mines lands and areas impacted by past management activities are in a comparable pre-mineral activity and provide comparable form and function based on site potential.
- 04** Environments in abandoned mines remain unaltered except where necessary to protect associated natural resources, such as wildlife as well as human health and safety concerns.

- 05** Opportunities for rock hounding and other types of noncommercial mineral collecting (e.g., for scientific, research, or educational purposes) are available.
- 06** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.
- 07** Cave and karst resources, inclusive of significant caves, are available for the perpetual use, enjoyment, and benefit of all people.
- 08** Geologic hazards (i.e., erionite/offretite, naturally occurring radio-active materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.

#### **Goals (FW-GO-EMIN)**

- 01** The Forest Service fosters increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, education, or recreation purposes.
- 02** CERCLA (Superfund) sites are coordinated with EPA and State partners within the context of the Superfund designation.

#### **Standards (FW-STD-EMIN)**

- 01** New mineral and energy management activities shall only be authorized when the associated reclamation plan includes provisions to return disturbed areas to stability and utility comparable to adjacent lands and/or pre-operational site conditions to the extent practicable.
- 02** The extent and mode of new access for mineral activity conducted under the General Mining Law of 1872 shall be commensurate with the prospecting, exploration, site development, mineral production or site reclamation and abandonment phase of mineral development.
- 03** When closing underground mine features to public entry, pre-closure inspections shall be conducted to determine if threatened, endangered or other at-risk species are present. Closures shall be designed and implemented to address needs of identified at-risk species needs unless public safety is in jeopardy.
- 04** Potential effects to human health and safety and to infrastructure investment from geologic hazards such as abandoned mine lands, mass wasting, naturally occurring acid rock drainage, naturally occurring radioactive materials, and naturally occurring fibrous minerals such as erionite shall be mitigated, reduced, or eliminated during land management activities in areas where they are known to or may reasonably occur.

#### **Guidelines (FW-GDL-EMIN)**

- 01** In order to attain mine site reclamation, new activities should not compromise the infrastructure and remedy applied to mine waste repositories and mine reclamation sites.
- 02** When authorizing or reauthorizing mineral development and operations, minimize adverse effects to aquatic and riparian resources. All proposed mineral operations should avoid riparian management zones. If the riparian management zone cannot be avoided, then ensure operators take all practicable measures to maintain, protect, and rehabilitate water quality, and habitat for fish and wildlife and other riparian associated resources which may be affected by the operations. Required

bonding must consider (in the estimation of bond amount) the cost of stabilizing, rehabilitating, and reclaiming the area of operations.

## Infrastructure—Roads, Trails, Facilities, Airfields, and Dams

### Introduction

The Infrastructure section direction does not apply to facilities specifically addressed as part of the livestock grazing program, such as allotment fences and water developments, which is found in the “Permitted Grazing” section. This section also does not include direction for Forest Service-owned communication infrastructure such as radio towers and communication equipment buildings, nor any privately-owned infrastructure under special use authorization.

### Roads and Trails (RT)

#### Introduction

The Custer Gallatin National Forest manages a 1,450-mile, open-road system, including 85 road bridges. These roads support land management activities, recreational users, access to private land in-holdings and commercial ventures, and Forest Service administrative needs. Roads include the roadway, any constructed feature such as bridges, ditches, culverts, signs, retaining walls, etc., that support the user and minimize the effects to other values. The road system is comprised of National Forest System roads and are part of the Road System Atlas.

The Custer Gallatin manages a 2,850-mile summer and winter trail system including 80 trail bridges. These trails are managed for a variety of recreational uses, including hiking, horseback riding, bicycling, running, skiing and snowshoeing, snowmobiling, motorcycle and all-terrain vehicle riding, and off-highway vehicle riding. In addition to recreation uses, the trail system also supports commercial ventures such as outfitter and guide services. Trails include the trailway, any constructed feature such as bridges, ditches, culverts, signs, retaining walls, etc., that support the user and minimize the effects to other values. The trail system is comprised of National Forest System trails and are part of the Trail System Atlas.

While airfields are considered part of the transportation system, there are no authorized airfields on the Custer Gallatin. Travel management on specific roads, trails, and motorized areas is addressed in the Custer National Forest and the Gallatin National Forest Travel Plans.

#### Desired Conditions (FW-DC-RT)

- 01** The transportation system provides safe and efficient public, private inholding, and administrative access to the Forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.
- 02** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (e.g., buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).

- 03** Invasive species are infrequent or non-existent along Forest roads, trails or around facilities.
- 04** Roads and bridges provide for the health and safety of each user, are cost effective, preserve the integrity of the road or trail, and reasonably protect the natural, cultural, and aesthetic values within the roadway or trailway.

#### Goals (FW-GO-RT)

- 01** The road system is part of a broader public road system that is under the jurisdiction of multiple road agencies. Road agencies cooperate routinely to reduce conflicts, ensure cost effective partnering, and provide a seamless transportation system to the public and reduces the overall footprint of the entire transportation system.
- 02** Road maintenance is shared with users on a commensurate basis. Residential subdivisions, commercial enterprises, utility companies, etc., using a National Forest System road share in the cost of road maintenance based generally on type and timing of use.
- 03** The trail system accommodates current and reasonably foreseeable recreational demands and ability of the Forest Service to provide sustainable maintenance through volunteer, partnership, or agency resources.
- 04** The Custer Gallatin National Forest cooperates with highway managers and landowners to implement wildlife and aquatic organism crossings that reduces encounters.

#### Objectives (FW-OBJ-RT)

- 01** Annually maintain 20 percent of high clearance vehicle roads, based on available budgets.
- 02** Annually maintain 75 percent of passenger vehicle clearance roads, based on available budgets.
- 03** Annually maintain 50 percent of trails, based on available budgets, emphasizing areas of higher use.
- 04** Annually remove 10 miles of planned unneeded system roads, based on available budgets.

#### Standards (FW-STD-RT)

- 01** During dust abatement applications on roads, chemicals shall not be applied directly to watercourses, water bodies (e.g., ponds and lakes), nor wetlands.
- 02** Forest Service owned or authorized construction and maintenance equipment shall be free of invasive plant materials prior to mobilizing onto Forest land.
- 03** For new road construction and reconstruction of existing road segments within or adjacent to riparian management zones, do not side-cast fill material.
- 04** Newly constructed or reconstructed roads shall not encroach into streams and riparian areas in ways that impact channel function, geometry, or sediment delivery.
- 05** To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges and other stream crossings) shall accommodate at least the 100-year flow, including associated bedload and debris.



## Guidelines (FW-GDL-RT)

- 01** New underground and overhead utilities such as powerlines, communication lines, waterlines, and gas lines should be collocated within the roadway corridor to reduce development disturbance. To reduce Forest Service administrative needs, major upgrades to existing utilities outside the roadway corridor should move to within the roadway corridor.
- 02** Road and trail construction or reconstruction should utilize new technologies to enhance functionality, improve efficiency, and reduce costs.
- 03** Temporary roads should be located and constructed to facilitate removal and restoration following the needed use.
- 04** Roads, skid trails, temporary roads, and trails should have a water drainage system that is hydrologically disconnected from delivering water, sediment, and pollutants to water bodies (except at designated stream crossings) to maintain the hydrologic integrity of watersheds.
- 05** To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or putting roads into intermittent stored service, i.e., storing roads for longer than 1 year, roads should be left in a hydrologically stable condition, i.e., drainage off roads should be routed away from water resources and landslide-prone areas and towards stable areas of the forest floor to provide filtering and infiltration.
- 06** When placing physical barriers such as berms on travel routes, such as roads, skid trails, temporary roads, and trails, assure that drainage features are sufficient to avoid future risks to aquatic resources, e.g., remove culverts from stream crossings.
- 07** To maintain and/or improve watershed ecosystem integrity, and reduce road-related mass wasting and sediment delivery to watercourses, new and relocated road, trail, (including skid trails and temporary roads) and other linear features should not be constructed on lands with high mass wasting potential.
- 08** To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges and other stream crossings) should be constructed to prevent diversion of stream flow out of the channels in the event the crossing is plugged or has a flow greater than the crossing was designed.
- 09** During construction or reconstruction, trails, fords and other stream crossings should be hardened to protect the stream bed, banks, and approaches in order to maintain channel stability and reduce sediment delivery to watercourses.
- 10** For maintenance activities such as road blading and snow plowing on existing roads, side-casting should be minimized, particularly into or adjacent to water bodies. Care should be taken when plowing snow so as not to include road soil and breaks should be designed in the snow berms to direct water off of the road.
- 11** Wetlands and unstable areas should be avoided when reconstructing existing roads or constructing new roads and landings. Impacts should be minimized impacts where avoidance is not practical.
- 12** To minimize sediment delivery to streams from roads when constructing, reconstructing, or maintaining road, road drainage should be routed away from potentially unstable channels, fills, and hillslopes.

- 13** Transportation infrastructure should be designed to maintain natural hydrologic flow paths to the extent practical, e.g., streams should have crossing structures and not be routed down ditches.
- 14** In fish bearing streams, construction, reconstruction, or replacement of stream crossings should provide and maintain passage for all life stages of native aquatic organisms unless barriers should be created or maintained to prevent spread or invasion of nonnative species in alignment with fish management agencies. These crossings should also allow for passage for other riparian-dependent species through the establishment of banks inside/beneath the crossing structure.

## Facilities (FAC)

### Introduction

The Custer Gallatin National Forest manages a variety of administrative and recreational facilities. This includes 200 administrative buildings and 472 recreational buildings with all the accompanying utilities.

Administrative facilities include offices, warehouses, fire stations, helicopter landing pads, water and wastewater systems, fire lookouts, residences, bunkhouses, stock handling buildings and pastures, fueling stations, backcountry cabins, fire retardant filling stations, radio repeater sites, storage, dams, site fencing, and other minor developments. These are used primarily for administrative support to Forest land management activities.

Recreational facilities include visitor centers, campgrounds, picnic areas, trailheads, river access sites, rental cabins, water and wastewater systems, interpretive sites, and support facilities such as toilets that support the Forest's recreational program.

Facilities are needed support the Agency's mission. This mission is characterized in each of the facility master plans where the appropriate facilities are recommended. For instance, the master plan characterizes how the Forest Service determines the need and scale of its residential housing program (quarters) and proposes the needed facilities.

### Desired Conditions (FW-DC-FAC)

- 01** Facilities support the Agency's multiple use mission.
- 02** Facilities not needed to support the Agency's mission are no longer present.
- 03** Facilities provide for the safety, health, and intruder security of the occupants.

### Objectives (FW-OBJ-FAC)

- 01** Annually maintain 40 percent of administrative facilities, based on available budgets.

### Guidelines (FW-GDL-FAC)

- 01** To maintain quality and quantity of water flows to, within, or between groundwater-dependent ecosystems, groundwater use developments (e.g., recreation and administrative sites, drinking water wells, waste water facilities) should not: (a) be developed in riparian management zones (unless no alternatives exist); (b) measurably lower river flows, lake levels, or flows to wetlands or springs (e.g., change springs from perennial to intermittent, or eliminate springs altogether); and/or (c) discharge pollutants directly to groundwater.
- 02** To protect resources, new and reconstructed solid and sanitary waste facilities should not be located within inner riparian management zones.

- 03** New facilities or infrastructure within expected long-term channel migration zone should be avoided to reduce potential impacts to water and fishery resources. Where new activities inherently must occur in riparian management zones (e.g., road stream crossings, boat ramps, docks, interpretive trails), locate them to minimize impacts on riparian associated resource conditions.
- 04** New technologies in energy, building materials, and water management should be applied in all renovations to enhance functionality, improve efficiency, reduce needed space, and reduce costs.

## Airfields, Aircraft Landing Strips (AIRFIELDS)

### Introduction

The Custer Gallatin National Forest does not manage any public or administrative airfields as part of the transportation system. The Forest owns taxiways and tarmacs at the West Yellowstone Airport in support of the smokejumper/air tanker base. Forest Service policy allows the public to land on national forest lands only at designated and authorized sites. None have been designated or authorized on the Custer Gallatin National Forest.

### Standards (FW-STD-AIRFIELDS)

- 01** Public recreational motorized aircraft landing/take-off shall not be allowed except at designated and authorized sites.
- 02** New landing/take-off locations shall be constructed, maintained, and operated by the holder of a special use authorization.

### Suitability (FW-SUIT-AIRFIELDS)

- 01** Backcountry aircraft landing strips are not suitable in designated wilderness, the Hyalite Porcupine Buffalo Horn Wilderness Study Area, the Cabin Creek Recreation Wildlife Management Area, research natural areas, recommended wilderness areas, areas of primitive or semi-primitive non-motorized recreation opportunity spectrum, or within the Grizzly Bear Primary Conservation Area.

## Dams (DAM)

### Introduction

The Custer Gallatin National Forest currently manages six Forest Service-operated jurisdictional dams. These do not include small, no-risk stock water impoundments that are addressed in the livestock grazing section.

Existing dams were likely constructed for one or two primary purposes that included water storage for stock watering and crop irrigation. Since that time, many impoundments have been maintained or enhanced for other benefits such as waterfowl habitat enhancement, recreational fisheries, and watersport or lakeside recreation.

### Desired Future Conditions (FW-DC-DAM)

- 01** Dams further the Agency's mission of water storage for livestock, wildlife and recreation.
- 02** Dams not needed for the Agency's mission are no longer present and the land is in a no-hazard condition with a more natural hydrologic function.

## Recreation Settings, Opportunities, and Access

### Introduction

Outdoor recreation helps create balance in one's life. Users of the Forest seek to reduce stress and regain physical or mental health. It provides fun, excitement, adventure, the chance to get out and do something different. The Custer Gallatin also offers recreation with rewards—both tangible (i.e., for hunters) and intangible such as new knowledge, experiences, and a sense of self-worth.

Recreation niches are useful in conveying the special, unique, or highly valued recreation opportunities across a landscape. The Custer Gallatin niche statements, developed separately before the two Forests joined, portray the role recreation plays across the combined Forest. The west side of the Forest is described as “world class wildland adventures” with river corridors and high mountain trails, and visitors enjoying year-round, world-class, recreation opportunities. The eastern side of the Forest focuses on the theme of “uncommon landscapes”, where jagged peaks and striking buttes offer expansive views of geologic and cultural changes. The diverse landscape, from peaks and alpine plateaus to rolling pine forests and prairies, provide wilderness, remote travel and vistas, wildlife viewing, and hunting.

### General Recreation (REC)

#### Desired Conditions (FW-DC-REC)

- 01** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area.
- 02** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation.
- 03** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the Forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources.
- 04** Existing developed facilities, roads, and trails for both summer and winter recreation activities are adaptable for new recreation demands.
- 05** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including threatened and endangered species, sensitive species, heritage and cultural sites, water quality, and aquatic species.

#### Objectives (FW-OBJ-REC)

- 01** Remove or relocate five existing recreation facilities, including dispersed sites, outside of riparian management zones, or undertake other means practicable if they are degrading aquatic or riparian resources over the life of the plan.

### Recreation Settings (ROS) Recreation Opportunity Spectrum

#### Introduction

The recreation opportunity spectrum is a classification tool used by Forest Service managers to provide visitors with varying challenges and outdoor experiences. The recreation opportunity spectrum (USDA Forest Service 1982) classifies National Forest lands into six management class categories defined

by setting and the probable recreation experiences and activities it affords including: urban; rural; roaded natural; semi-primitive motorized; semi-primitive non-motorized; and primitive.

Sustainable recreation is the set of recreation settings and opportunities on national forests that is ecologically, economically, and socially sustainable for present and future generations. The recreation opportunity spectrum in summer and winter is used in each phase of planning to assess, integrate, convey, and monitor the plan area's social, managerial, and physical settings, including seasonal variations and associated benefits.

- Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.
- The type and level of infrastructure, visitor services, and information are sustainable and consistent with the desired recreation opportunity spectrum settings.

### Desired Conditions (FW-DC-ROS)

- 01 Primitive ROS settings (Summer)** encompass large, wild, remote, and predominately unmodified landscapes. These settings often coincide with designated wilderness. Primitive ROS settings contain no motorized recreation. They provide quiet solitude away from roads and people, are generally free of human development, and facilitate self-reliance and discovery. Historic structures such as log ranger stations and fire lookouts are occasionally present. Signing, and other infrastructure, is minimal and constructed of rustic, native materials.
- 02 Primitive ROS settings (Winter)** are large, remote, wild, and predominately unmodified. Winter primitive ROS settings provide quiet solitude away from roads and people. There is no motorized activity and little probability of seeing other people. Constructed trails that are evident in the summer months are covered by snow, making these settings appear even more natural and untouched by human management.
- 03 Semi-Primitive Non-Motorized settings (Summer)** provide opportunities for exploration, challenge, and self-reliance. Rustic structures such as signs and foot bridges are occasionally present to direct use and/or protect the setting's natural and cultural resources. These rustic constructed features are built from native materials or those that mimic native materials. Closed roads may be present, but do not dominate the landscape or detract from the semi-primitive non-motorized experience of visitors. These settings are free of motorized recreation travel, but mechanized travel may be present.
- 04 Semi-Primitive Non-Motorized settings (Winter)** provide backcountry skiing, snowboarding, and snowshoeing opportunities. Trails are un-groomed and often not marked. Rustic facilities, such as historic cabins and yurts may exist but are rare.
- 05 Semi-Primitive Motorized ROS settings (Summer)** provide motorized recreation opportunities in backcountry settings. Routes are designed for off-highway vehicles and high-clearance vehicles that connect to local communities, access key destinations and vantage points, provide short day trips on scenic loops or facilitate longer and even overnight, expeditions. Visitors challenge themselves as they explore vast, rugged landscapes. Mountain bikes and other mechanized equipment may also be present. Facilities are rustic and are used for the purpose of protecting the setting's natural and cultural resources. Bridges are sometimes present to accommodate foot, horse, and all-terrain vehicle traffic, but are built from native or natural appearing materials that blend with the

surrounding landscape and maintain the semi-primitive character of the setting. There may also be nodes that function as portals for visitors to park their all-terrain vehicles and explore adjacent semi-primitive non-motorized and primitive settings on foot.

- 06 Semi-Primitive Motorized settings (Winter)** provide backcountry skiing and snowmobiling opportunities. Routes are typically un-groomed, but are often signed and marked. There are vast areas to travel cross-country, offering visitors an opportunity for exploration and challenge. Occasionally, historic cabins or warming huts are available for short breaks or overnight use.
- 07 Roaded Natural ROS settings (Summer)** are often referred to as front-country recreation areas. This setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. Sanitation, potable water, interpretive signing, and other amenities are strategically placed to serve as destination points and/or portals to adjacent backcountry settings. Signing, facilities, bridges and other infrastructure are constructed of native materials or natural appearing materials that blend with and complement the surrounding natural setting.
- 08 Roaded Natural ROS settings (Winter)** support higher concentrations of use, user comfort, and social interaction. The road system is plowed and accommodates sedan travel. Winter trails are routinely groomed and may have ancillary facilities such as warming huts and restrooms. System roads and trails often provide staging to adjacent backcountry settings (primitive, semi-primitive non-motorized and semi-primitive motorized). Guided snowmobiling, dog sledding, skiing, and snowshoeing may also be present.
- 09 Rural ROS settings (Summer)** often serve as a recreation destination and sometimes provide access to adjacent roaded natural and semi-primitive settings and opportunities. These areas are accessed from paved roads and are generally close to communities. Developed recreation facilities are designed for large groups and provide opportunities to socialize in both day-use and overnight sites.
- 10 Rural ROS settings (Winter)** provide staging to adjacent winter settings and opportunities. These areas are accessed from paved and plowed roads and are generally close to population centers. Warming huts or other shelters, sanitation, and information and education are commonly present. Parking areas are large and plowed. Entry points and routes are signed and lead snowmobiles to adjacent roaded natural and semi-primitive motorized settings. Non-motorized trails are also typically groomed for skate skiing and cross-country skiing. Rural winter settings provide quick and convenient access for communities and families to celebrate holidays, conduct racing events, walk their dogs, or simply get some exercise. Table 2-16 displays the summer and winter recreation opportunity spectrum acreages.

**Table 2-16. Forestwide recreation opportunity spectrum settings**

<b>Recreation Opportunity Spectrum Class</b>	<b>Summer Acres</b>	<b>Summer Percent of Forest</b>	<b>Winter Acres</b>	<b>Winter Percent of Forest</b>
Primitive	1,056,106	35%	1,047,357	34%
Semi-primitive Nonmotorized	689,348	23%	601,875	20%
Semi-primitive Motorized	877,220	29%	998,300	33%
Roaded Natural	321,854	11%	299,809	10%
Rural	94,643	3%	91,832	3%

**Guidelines (FW-GDL-ROS)**

- 01** New recreation facilities should be designed to be appropriate for the assigned ROS class, in terms of materials, development scale, on-site regimentation signage, and density of sites, as well as consistent with the principles of the Forest Service Built Environment Image Guide, in terms of architectural character.

**Suitability (FW-SUIT-ROS)**

- 01** Motorized uses (both summer and winter) are not suitable in primitive and semi-primitive non-motorized recreation opportunity spectrum settings.
- 02** Mechanical means of transportation are not suitable in primitive recreation opportunity spectrum settings.

**Recreation Opportunities—Developed Recreation Sites (RECDEV)****Introduction**

Developed recreation sites include, but are not limited to, developed campgrounds, picnic areas, interpretive sites, cabin and lookout rentals, trailheads, and visitor centers.

**Desired Conditions (FW-DC-RECDEV)**

- 01** Developed recreation reflects the unified Custer Gallatin’s recreation niche.
- 02** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor’s experience, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use.
- 03** Developed recreation facilities provide a pleasing setting that is consistent with the recreation opportunity spectrum.
- 04** Additional developed recreational capacity on the Forest is within the context of opportunities and facilities provided by surrounding and nearby private and public recreation providers.
- 05** Day use sites may be a destination or may support a variety of dispersed activities such as relaxation, viewing scenery and wildlife, and for water and snow-based play.
- 06** Developed recreation sites and facilities enhance the recreation experiences of Forest visitors, provide for public health and safety, and protect natural resources.
- 07** Recreation rental cabins and rental lookouts provide a range of opportunities.

- 08** Snags and hazard trees are not present within developed recreation sites providing for the safety of the public.
- 09** Developed recreation corridors containing multiple facilities keep visitor use concentrated rather than shifting development to other areas.
- 10** New developed recreation sites provide needed recreation access where current dispersed uses such as river access or dispersed camping are impacting other resources, such as riparian resources.
- 11** Existing developed recreation facilities are adaptable to emerging goals for access, resource protection, or changing visitor demands.
- 12** Developed recreation site locations and seasons of use responds to or anticipates potential climate changes that may affect the timing, quantity, and duration of water flows, the snow levels and snow elevation changes, impacts to fish and wildlife habitats, changes in vegetative conditions, and the extension of seasonal recreation use.

#### Goals (FW-GO-RECDEV)

- 01** Private and public partnerships, e.g., contractors, concessionaires, private sector and volunteers, are encouraged to provide capacity to help meet current and future recreation demands.

#### Guidelines (FW-GDL-RECDEV)

- 01** New developed recreation facilities should meet the ROS design criteria. Exemptions may occur on a case-by-case basis to reflect environmental conditions such as meeting snow loads.
- 02** Vegetation management activities in developed recreating sites, should protect public safety, scenic values and vegetation health.

#### Suitability (FW-SUIT-RECDEV)

- 01** Developed recreation sites are not suitable for timber production, but timber harvest may be allowed for purposes such as public safety, fuels reduction, restoration, or wildlife habitat enhancement.
- 02** Gathering of home use firewood, post and poles, teepee poles, and biomass and wood fiber for solely commercial purposes is not suitable within developed recreation sites.
- 03** Developed recreation sites are not suitable for livestock grazing unless it can be accommodated before or after the recreation use season and/or is for purpose of weed removal/vegetation control.

### Recreation Opportunities—Dispersed Recreation (RECDISP)

#### Introduction

Dispersed activities generally occur outside of facilities provided by the Forest, expressing a sense of freedom and unconfined recreation. Seven main activities (hiking, biking, hunting, general relaxing, fishing, skiing, and snowmobiling) account for over 80 percent of the Custer Gallatin's total visitation for dispersed recreation activities. Some dispersed recreation locations and activities are renowned destinations for national and international travelers, such as traveling the Beartooth Highway, fly fishing and rafting on area rivers, and ice climbing in the Hyalite corridor. Other activities and locations may predominantly be visited by residents from the local area. The eastern ranger districts see more visitors during hunting seasons than any other time of year. Dispersed recreation provides opportunities for self-



directed exploration encompassing multiple activities from rock and ice climbing, fishing, camping, target shooting, and birding, etc.

#### **Desired Conditions (FW-DC-RECDISP)**

- 01** Dispersed opportunities are available across the Forest for a wide variety of users where compatible with environmental resources, and social interactions such as user conflicts and crowding.
- 02** Dispersed recreation use is compatible with ecological values and recreation settings.
- 03** Dispersed recreation education effectively reaches users with a message of individual responsibility for self-sufficiency when recreating without provided facilities.
- 04** Diverse opportunities exist for hunting, trapping, wildlife viewing, and fishing on Forest lands.

### **Recreation Opportunities – Recreation Special Uses (RECSUP)**

#### **Introduction**

The Forest provides opportunities for a wide variety of recreation special uses that include commercial ski areas, outfitter and guiding services, resorts and lodging, recreational events, organizational camps, and recreation residences. Recreation facilities and opportunities are owned and provided by private individuals, businesses, institutions and other organizations permitted to be located on the Custer Gallatin.

#### **Desired Conditions (FW-DC-RECSUP)**

- 01** Recreation special uses provide unique opportunities, services, and experiences for the recreating public on National Forest lands and/or attend to a demonstrated demand for a specific recreation opportunity.
- 02** Services provided by recreation special uses enhance the recreation experiences of Forest visitors, enhance public health and safety, and protect natural resources.
- 03** Recreation special uses contribute to economic sustainability and are compatible with ecological and social capacity thresholds.
- 04** The vegetation within recreation special use facilities is healthy, resilient, and provides for the health and safety of the public.

### **Recreation Opportunities—Outfitter Guides (RECOG)**

#### **Introduction**

Approximately 175 outfitter and guide permittees operate on the Custer Gallatin. The six operators on the Ashland and Sioux Districts exclusively provide hunting services. The remaining 169 operators provide a wide range of year-round services. Horseback trail rides and rafting and boating are the two activity types with the most authorized days and account for over of 60,000 user days. Environmental education, fishing, hunting, and hiking and backpacking are the next highest authorized activities and primarily occur in the summer and fall. In winter, snowmobile guiding and rental in West Yellowstone accounts for the largest number of service days. Many backcountry and river-based outfitters and guides and other recreation-based companies are dependent on the Custer Gallatin for their livelihood. Thousands of visitors experience the Forest through the use of outfitter and guide services.

### Desired Conditions (FW-DC-RECOG)

- 01** Outfitters and guides offer services that the agency and public need, in order to offer opportunities that otherwise would not be obtainable therefore increasing the diversity of recreation opportunities available.
- 02** Outfitter and guide recreation special uses provide service to the extent necessary for realizing the recreational purposes of the Forest.
- 03** Outfitter and guide services promote the roles, contributions, and sense of the place, and are appropriate for the recreation opportunity spectrum class.
- 04** Outfitter and guide activities are compatible with the experiences of other recreation visitors.

### Goals (FW-GO-RECOG)

- 01** The Custer Gallatin National Forest works with outfitters and guides, partners, and other permittees to deliver interpretation and education messages that instill an appreciation for the natural and cultural resources of the Forest, and promotes conservation and stewardship.

## Recreation Opportunities—Recreation Residences (RECRES)

### Introduction

Recreation residences are privately-owned cabins located on national forest land, authorized by special-use permits. Permit holders pay an annual fee for their use. On the Custer Gallatin, there are a total of 293 recreation residences, which is the greatest number of all Northern Region National Forests. Recreation residences are administered to ensure compliance with direction in the special-use permit Forest Service Manual and Handbook. Permits are terminated only in those rare circumstances according to conditions and protocols specified in the permit, Forest Service Handbook and Manual, regulations and law.

### Desired Conditions (FW-DC-RECRES)

- 01** Existing recreation residences continue to provide rustic, vacation-style facilities that are visually appropriate in and subservient to their natural-appearing forest settings, and allow cabin owners, their families and guests to be able to enjoy the Forest and its recreation opportunities.

### Standards (FW-STD- RECRES)

- 01** With the exception of in-lieu lots, which have limited application for existing cabin owners pursuant to national policy and the permit itself, no new recreation residence lots shall be made available or assigned.
- 02** New or reconstructed recreation residences shall not exceed 1,500 square feet of roofed or enclosed for space. New construction in excess of 1,500 square feet shall only be allowed to correct health or safety problems.

## Recreation Opportunities—Ski Resorts (RECSKI)

### Introduction

Four ski resorts currently operate under permit on the Custer Gallatin, two alpine ski areas and two Nordic ski areas. Bridger Bowl is located about 15 miles north of Bozeman in the Bridger Mountains. The base operations are on private property and access an array of ski terrain on the Forest. Red Lodge

Mountain Resort is located on the eastern front of the Beartooth Mountains about 6 miles west of Red Lodge.

Crosscut Mountain Sports Center is located approximately 18 miles north of Bozeman in the Bridger Mountains. Two trails and approximately 8 kilometers are located on the Forest and the remaining operation and all of the base facilities are on private property. Lone Mountain Ranch Nordic area is located in Big Sky. Approximately 10 kilometers of Forest Service Roads 166B and 166D and Forest Service Trail #16 are operated as groomed routes under special-use permit. All of the base area and the remaining operation is on private property.

#### **Desired Conditions (FW-DC-RECSKI)**

- 01** Activities such as zip lines, alpine slides, and downhill mountain bike trails with infrastructure are available at existing downhill ski permit areas.

#### **Guidelines (FW-GDL-RECSKI)**

- 01** New ski areas should be approved only when existing ski areas cannot be expanded to accommodate additional use.

#### **Suitability (FW-SUIT-RECSKI)**

- 01** Ski resorts are not suitable for timber production but timber harvest may be allowed for purposes such as public safety, fuels reduction, restoration or wildlife habitat enhancement.

### **Recreation Opportunities—Recreation Events (RECEVENTS)**

#### **Introduction**

The Custer Gallatin has a large number of recreation special-use permittees including those hosting recreation events that help provide opportunity for visitors. These permits are issued for activities such as summer and winter races, organized rides, and winter festivals.

#### **Desired Conditions (FW-DC-RECEVENT)**

- 01** Recreation events provide opportunities to participate in competitions or highlight special occasions.

#### **Guidelines (FW-GDL-RECEVENT)**

- 01** Permitted recreation events should not create unreasonable displacement or conflicts with general recreation use and access.

### **Recreation Opportunities—Organizational Camps (RECORG CAMP)**

#### **Introduction**

Seven organizational camps currently operate on the Forest under the most recent authority of the National Forest Organizational Camp Fee Improvement Act of 2003, which authorizes the use and occupancy of national forest lands.

#### **Desired Conditions (FW-DC-RECORG CAMP)**

- 01** Organizational camps, as authorized by the Forest Organizational Camp Fee Improvement Act, provide valuable services to young people such as Boy Scouts, Girl Scouts, community-based organizations, youths-at-risk, individuals with disabilities, and their families by promoting physical, mental, and spiritual health through activities conducted in a natural environment.

### **Suitability (FW-SUIT-RECORGCAMP)**

- 01** Organizational camps are not suitable for timber production but timber harvest may be allowed for purposes such as public safety, fuels reduction, restoration or wildlife habitat enhancement.

## **Recreation Opportunities—Commercial Filming and Still Photography (RECFILM)**

### **Introduction**

The Forest Service recognizes that the public and/or natural resources may benefit from commercial filming on National Forest lands by increasing public awareness about the beauty of and opportunities offered by national forests. Commercial filming and still photography activities usually require prior authorization by the Forest Service to ensure that the land and resources are protected and to avoid conflicts with other Forest uses. Generally, authorization is granted in the form of a Forest Service special-use permit issued by the appropriate authorized forest service officer.

### **Desired Conditions (FW-DC-RECFILM)**

- 01** Opportunities for companies, businesses, and individuals to do commercial filming and still photography activities are available to help support local economies as well as showcase the value of the Forest.

## **Recreation Opportunities—Non Commercial Group Use (RECGROUP)**

### **Introduction**

The Forest Service issues permits to groups, per Forest Service direction, policy and law, to use the Forest for non-commercial organized group activities such as weddings, family reunions, special interest groups or clubs, where those activities would not unreasonably conflict or preclude other public uses, result in negative effects to Forest resources or create unsafe situations.

### **Desired Conditions (FW-DC-RECGROUP)**

- 01** Group use permits allow the Forest to work with groups to address and mitigate possible impacts and to protect forest resources and improvements, address public health and safety problems, and avoid conflicting land uses.

### **Guideline (FW-GDL-RECGROUP)**

- 01** New permits for non-commercial group use over 75 people should be first referred to developed recreation sites designed to accommodate that use.

## **Visitor Education/Interpretation (RECED)**

### **Introduction**

Opportunities for connecting people to their environment and to the natural and cultural history of the area are offered by the Custer Gallatin. These connections provide opportunities for the development of strong stewardship ethics in the form of personally delivered talks and programs, brochures and booklets, interpretive wayside exhibits using digital and other formats. These all contribute to offering an appreciation for the natural and cultural history across these landscapes. There are opportunities for other organizations and partners to join the Forest in achieving mutual goals for education and interpretation.

Since 1990, the Gallatin National Forest Avalanche Center in Bozeman has provided critical education to winter Forest visitors. It delivers current avalanche, snowpack, and mountain weather information and basic avalanche education for the Bridger, Gallatin, and Madison Ranges, the Lionhead area near West Yellowstone, and the mountains around Cooke City.

#### **Desired Conditions (FW-DC-RECED)**

- 01** Interpretation and education products enhance visitors' understanding and appreciation for the rich natural and cultural resources of the Forest, and builds support for public lands.
- 02** Visitor information is readily available for pre-visit information gathering in a variety of forums and kept up to date so that the public may be informed and educated through modern technology about current Forest Service related policies, activities, services, and issues.
- 03** As backcountry use increases, the services provided by the Avalanche Center support public health and safety, and the development of future good winter stewards.
- 04** Education, in a variety of mediums about Forest stewardship and responsible use leads to better visitor compliance with regulations.
- 05** The Main Boulder Station continues to interpret the history of the Forest in the Boulder Valley as a living history museum.
- 06** The Gallatin Petrified Forest offers the structured opportunity to learn about and gather small pieces of petrified wood samples.

#### **Goals (FW-GO-RECED)**

- 01** The Custer Gallatin National Forest seek partners and volunteers to assist in the delivery of public information, natural and historic interpretation, conservation education, and stewardship services
- 02** The Avalanche Center seeks partners to aid its successful operation for its full season.

#### **Emerging Recreational Technologies (RECTECH)**

##### **Introduction**

Recreational products are likely to emerge over the lifetime of the Forest Plan. Some will be prohibited under existing regulations, other new uses may be unspoken to by current direction.

#### **Desired Conditions (FW-DC-RECTECH)**

- 01** New recreational technologies contribute to visitor enjoyment and experiences, consistent with recreation settings.

#### **Goal (FW-GO-RECTECH)**

- 01** New recreational technologies are integrated into the Forest with support and guidance through the involvement of a community of interests.

#### **Guideline (FW-GDL RECTECH)**

- 01** Use of new recreational technologies not currently authorized may be allowed when new facilities needed to accommodate these technologies are constructed per the development class of the associated recreation setting.

## Scenic Character (SCENERY)

### Introduction

Scenery is a resource valued and enjoyed by Forest visitors. It also provides an integral and important sense-of-place backdrop, setting, and character-defining element for adjacent communities, residential areas and travel ways. The spectacular scenery of the Forest, especially in the Greater Yellowstone Area, is a national and regional driver for tourism, recreation, and the economy, as well as the growth of communities and residential areas that in many places, extend up to and along the edges of Forest land. Across the wide variety of scenery character types represented, roughly half of the Forest landscape is classified as “Class A–Distinctive” Inherent Scenic Attractiveness (of three levels, as defined by the Forest Service Scenery Management System), where the landforms, vegetation patterns, water characteristics and cultural features combine to provide unusual and outstanding scenic qualities.

Scenery management across the entire Forest, on national forest land, is guided by the mapped scenic integrity objectives (SIOs) developed according to the Forest Service Scenery Management System (SMS) process, which specifies five levels from “very high” to “very low”. The SIOs are used for project planning, analysis, implementation and monitoring work.

### Desired Conditions (FW-DC-SCENERY)

- 01** The Forest’s scenery provides for public enjoyment of the landscape’s varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands.
- 02** The condition of the Forest scenery, as directed by the scenic integrity objectives (see Table 2-17), reflects a relative range that balances social and economic values, ecosystem health, sustainability and diversity, and contributes to the quality of life of local residents and Forest visitors.

**Table 2-17. Scenic integrity objectives**

Scenic Integrity Objective	Acres	Percent of Forest
Very High	1,164,583	38%
High	619,349	20%
Moderate	672,195	22%
Low	585,711	19%

### Guidelines (FW-GDL-SECENERY)

- 01** New landscape modifications such as timber harvesting or construction of facilities, should meet or exceed the mapped scenic integrity objectives (SIOs) as seen from anywhere within areas assigned an SIO of very high or high, and as seen from mapped concern level 1 and 2 travel ways and viewpoints. See appendix B for maps showing the Forest Plan SIOs and the applicable concern level 1 and 2 travel ways and viewpoints. The SIOs serve as thresholds of allowable visual dominance by landscape modifications over the valued scenic character and allowable deviation from the desired scenic character.
- 02** Within an area assigned a Forest Plan SIO of moderate, low or very low, no Forest Plan SIO applies to areas that are unseen from the mapped concern level 1 or 2 travel ways and viewpoints. However,

timber harvest units must be shaped and blended to the extent practicable with the natural terrain (see Timber Standard FW-STD-TIM-05).

- 03** Within each constructed facility complex (such as a campground or an administrative site), due to the inherent developed nature, the SIO of low applies. All new buildings and developed facilities (Forest Service and permitted privately-owned) should follow design principles related to location, scale, color, and form as explained in the “Forest Service Built Environment Image Guide” (or any subsequent updated version), especially in the immediate foreground of valued viewsheds.
- 04** New recreation facilities such as campgrounds or permitted privately-owned recreation facilities on National Forest land, such as resorts, organizational camps, recreation residences, should be visually consistent with the latest version of the Facilities and Site Management Indicators, which is the design guidance of the assigned recreation opportunity spectrum class.
- 05** Vegetation management components of new projects should achieve the assigned SIO within 5 years after completion of all activities associated with the project (including activities such as regrading landings or temporary roads, broadcast burning or burning slash piles, or reseeding and planting).
- 06** Components of new projects other than vegetation management, such as facility installation or road construction, should meet the assigned SIO within 2 years after completion of all activities associated with the project.
- 07** New hard rock mining activities associated with valid existing rights may deviate from the assigned SIO only after all reasonable mitigations have been applied (within the project’s context of economic or technical feasibility). Magnitude of deviations should be commensurate with the phase of development, with the least amount of deviation allowed for phases of long duration, such as post-reclamation or production phases longer than 10 years.
- 08** In locations where national forest land adjacent to a new project currently does not meet the SIO, new actions should not be allowed if they would have an overall cumulative effect of lowering the scenery condition for that viewshed, in the context of the overall viewshed, including any private land that is visible within the viewshed.

## Designated Areas

### Introduction

A designated area is defined as an area or feature identified and managed to maintain its unique special character or purpose. Some categories of designated areas may be designated by statute and some may be established administratively. Examples of statutorily designated areas include, but are not limited to, designated wilderness areas, wild and scenic rivers, national scenic trails, and wilderness study areas. Examples of administratively designated areas include, but are not limited to, research natural areas, scenic byways, special areas with unique values, and wild horse territories. Typically, these areas are not suitable for timber production, but in some cases timber harvest may be appropriate to achieve desired conditions such as for recreational values, public safety, or ecological restoration. Recreation emphasis areas, a Forest Plan allocation, is also included in this section.

## Designated Wilderness (WILD)

### Introduction

These vast, designated wilderness settings include portions of the Absaroka-Beartooth Wilderness and the Lee Metcalf Wilderness where humans learn their own capabilities in a primordial backcountry with some of the most awe-inspiring wildlife in North America—wolves, grizzly, and wolverines.

Approximately 950 miles of trail are located within one of the two designated wilderness areas, with the bulk of those miles in the Absaroka-Beartooth Wilderness. These designated wilderness areas comprise roughly 1,051,322 acres, which is nearly 35 percent of the Forest.

Wilderness character is defined in terms of five qualities: natural, solitude or primitive and unconfined recreation, undeveloped, untrammelled, and other features. These qualities can be used to improve wilderness stewardship and foster consistent stewardship across the National Wilderness Preservation System. National objectives for wilderness management (WO amendment 2300-2007-1 effective date: 01/22/2007, 2320, page 8 of 55 FSM 2300-Recreation, Wilderness, and Related Resource Management Chapter 2320-Wilderness Management) are as follows:

1. Maintain and perpetuate the enduring resource of wilderness as one of the multiple uses of National Forest System land.
2. Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces.
3. Minimize the impact of those kinds of uses and activities generally prohibited by the Wilderness Act, but specifically excepted by the Act or subsequent legislation.
4. Protect and perpetuate wilderness character and public values including, but not limited to, opportunities for scientific study, education, solitude, physical and mental challenge and stimulation, inspiration, and primitive recreation experiences.
5. Gather information and carry out research in a manner compatible with preserving the wilderness environment to increase understanding of wilderness ecology, wilderness uses, management opportunities, and visitor behavior.

Management actions are required to meet minimum requirements for the administration of the areas as wilderness and to have the least impact to wilderness character. The use of a minimum requirement analysis is required for any action that includes a prohibited use as described in section 4(C) of the Wilderness Act, or for other actions that may impair wilderness character (see [www.wilderness.net](http://www.wilderness.net) for most current minimum requirement analysis guidance). Ecosystems restoration projects will comply with a minimum requirement analysis in conjunction with the currently draft Framework for Evaluating Ecological Intervention (Landres and Hann 2017) when finalized, to determine the project is the minimum necessary for the administration of the area as wilderness.

Table 2-18 displays each of these wilderness areas, the geographic area(s) each is located within, and the approximate number of acres of each wilderness within the Custer Gallatin.



**Table 2-18. Designated wilderness areas**

<b>Wilderness</b>	<b>Geographic Area</b>	<b>Wilderness Acres</b>
Lee Metcalf	Madison, Henrys Lake and Gallatin Mountains	133,848
Absaroka-Beartooth	Absaroka-Beartooth Mountains	920,343
<i>Total Acres of Wilderness</i>		<i>1,054,191</i>

**Desired Conditions (FW-DC-WILD)**

- 01** Wilderness areas embody the wilderness characteristics of naturalness and opportunities for solitude.
- 02** Key qualities of wilderness character for a given area including: untrammeled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated.
- 03** The untrammeled quality of wilderness is essentially unhindered and free from modern human control or manipulation.
- 04** Natural ecological processes and disturbances (e.g., succession, wildfire, avalanches, insects, and disease) are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide opportunities for visitors to experience natural ecological processes and disturbances with a limited amount of human influence
- 05** Wilderness exhibits an undeveloped quality and is without nonconforming and/or unnecessary facilities, installations or human-caused surface disturbances.
- 06** Outstanding opportunities for solitude or primitive and unconfined recreation are available, where impacts to the wilderness character are not degraded.
- 07** Each wilderness area accommodates levels of recreation use that are ecologically sustainable and provides opportunities for solitude, primitive recreation and wilderness character.
- 08** Forest system trails that access wilderness are part of a high-quality wilderness experience for visitors.
- 09** Human impacted areas and associated resource impacts are not expanding into nearby un-impacted areas.
- 10** User-created trails are not dominant on the landscape. Resource impacts of user-created trails are compatible with the wilderness characteristics.
- 11** Equity in access is available via the special-use permit system for all authorized and legitimate uses.
- 12** Commercial uses (outfitter and guiding) of wilderness provide wilderness appropriate recreation access.

**Goals (FW-GO-WILD)**

- 01** Stewardship/management of the Lee Metcalf and Absaroka-Beartooth is coordinated between managing agencies (Beaverhead-Deerlodge National Forest, Shoshone National Forest and the BLM Dillon Resource Area).

- 02** Cooperative management of native fisheries with Montana Fish Wildlife and Parks emphasizes continued provision of recreational fisheries at popular sites, with restoration of native species as appropriate.
- 03** The Forest Service coordinates with Montana Fish Wildlife and Parks on fish and wildlife restoration or re-introduction projects in wilderness in Montana.

#### **Standards (FW-STD- WILD)**

- 01** New or reconstructed trails shall not be designed to trail management objective 5 within the wilderness.
- 02** New or re-routed trails in wilderness shall be located in resilient areas, do not cause impacts to at-risk species, water quality, soils, hydrologic connectivity or cultural resources.
- 03** New range improvements associated with existing allotments shall be authorized only for the purpose of enhancing wilderness character or for resource protection.
- 04** Administrative authorizations for use of motor vehicles, motorized equipment or mechanical transport shall be limited to the minimum necessary for the purposes of wilderness or human health and safety.
- 05** Forest system trails meet national quality standards, with minimal deferred maintenance and adhere to the national trail classification system.
- 06** The removal of mineral materials shall not be allowed.
- 07** Construction of new roads shall not be allowed.
- 08** New energy/utility corridors shall not be allowed.
- 09** New recreation events shall not be allowed.
- 10** New commercial filming and new commercial still photography shall not be allowed.

#### **Guidelines (FW-GDL-WILD)**

- 01** To protect wilderness character, authorization of new recreation use group size should not exceed the physical capacity or availability of campsites, or the social capacity of the specific area. The party size and number of stock per party should be limited to a level that protects wilderness character. The level may vary within or between wildernesses.
- 02** Treatment of nonnative invasive plant species should utilize pulling or hand tool use prior to herbicide treatments in order to minimize the impacts to the untrammelled quality of wilderness while effectively treating nonnative invasive plant species.
- 03** New bridges or structures should use native or rustic/natural appearing materials and structures should be designed primarily for user safety or resource protection, not user comfort.

#### **Suitability (FW-SUIT-WILD)**

- 01** Designated wilderness areas are not suitable for timber production and timber harvest is not allowed.
- 02** Designated wilderness areas are not suitable for motorized or mechanized recreation activities.

- 03** Permitted livestock use is suitable only in those portions of wilderness where grazing had been established prior to the area’s wilderness designation.

### *Absaroka-Beartooth and Lee Metcalf Wilderness by Zone and Opportunity Class*

#### Introduction

The wilderness areas on the Custer Gallatin are further delineated into three zones with more refined management purposes. Zoning is the practice of delineating particular areas in a wilderness where different biophysical or social resources call for the application of varying management policies, actions, or visitor management techniques. While zoning is not mentioned in the Wilderness Act, it is a concept that can be essential to managing the complex realities of wilderness in the 21st century. Biophysically and socially, wilderness areas are not homogeneous. Some ecological areas may be more sensitive, or particular areas may be more attractive or accessible to visitors. The three zones are a subset of the “primitive” recreation opportunity spectrum classification applied to all designated wilderness on the Forest. Table 2-19 illustrates the proportion of each wilderness by zone. See appendix B for a map of these zones.

**Table 2-19. Percent of acres by wilderness zone**

Wilderness Area	Zone I (Pristine)	Zone II (Primitive)	Zone III (Transition)
Lee Metcalf	68%	22%	10%
Absaroka-Beartooth	79%	14%	7%

#### A. Desired Condition: Zone/Opportunity Class I (PRISTINE)

- 01 Natural Quality:** The essentially unmodified natural environment exhibits the highest degree of natural integrity. Ecological conditions are minimally affected by the actions of users, and ecological processes operate naturally. Environmental impacts are minimal, restricted to very minor loss of soil and vegetation disturbance from human or livestock use. These impacts are subtle in nature and are not apparent to most visitors. Vegetation composition or soil damage affected by human disturbance is recovering naturally. Riparian, lakeshore, and stream channel conditions show no measurable degradation due to human uses. This trail-less zone includes areas where there is the least amount of human disturbance and the highest degree of natural integrity.
- 02 Opportunities for Solitude and Primitive or Unconfined Recreation:** This area provides the highest opportunity to experience solitude and isolation from others. Evidence of human activities is predominantly absent. Traveling in this area provides a high degree of challenge/risk and primitive recreation opportunities. Encounters with other visitors are very infrequent. Very few inter-party contacts occur while traveling and are nonexistent at the campsite. Campsites are at a very low density and show only very minor impacts that rarely persist year to year. The area is generally trail-less, with no system trails. User created routes do not dominate the landscape. Site-specific regulations may be in place in unusual cases where resources require higher levels of protection. Contact between visitors and management personnel during the normal use season is infrequent and mostly by invitation, or to correct apparent problems.
- 03 Undeveloped:** There are no administrative structures. There are no other permanent structures in this class, except those associated with valid existing uses/rights that pre-date designation. Visitor education located outside of wilderness contributes to the understanding of rules and regulations. Regulatory signs may be necessary to protect the resource or protect public safety, but signing is a rare exception and temporary in nature.

**04 Untrammeled:** The wildness of the area contributes to natural integrity and the function of the natural ecosystem.

**B. Desired Condition: Zone/Opportunity Class II (PRIMITIVE)**

**01 Natural Quality:** Zone/opportunity class II zones are predominantly unmodified natural environments. Ecological processes operate naturally with limited to light evidence of human impact in areas where use is concentrated. Riparian, lakeshore, and stream channel conditions show only temporary change, which may persist from year to year. The area functions as a wild place and these are largely unmodified landscapes. Environmental impacts are minimal, restricted to minor loss of soil and vegetation where camping or livestock use occurs and along travel routes. These impacts are not typically apparent to most visitors.

**02 Opportunities for Solitude and Primitive or Unconfined Recreation:** This area provides a high-to-moderate opportunity to experience solitude and isolation from others. Generally, encounters with others are low to moderate. Traveling in this area on existing trails provides a moderate degree of challenge and risk. Inter-party contacts while traveling are low to moderate and low at the campsite. Concentrations of campsites may exist at trail junctions and popular destinations. No new sites are forming over time. Barren core areas may exist on some sites and persist from year to year. Outside of these concentrated use areas, campsite density is low and impacts are light. Visitor education located inside of wilderness, where necessary, contributes to the understanding of rules and regulations. Contact between visitors by management personnel during the normal use season are minimal.

**03 Undeveloped:** Generally no administrative structures are present, except for a limited number of food storage poles within key occupied grizzly bear areas. No other permanent structures are present, except pre-existing permitted structures such as water improvements, and drift fence, etc.

**04 Untrammeled:** The zone reflects the natural ecosystem, with natural processes unmanaged.

**C. Desired Condition: Zone/Opportunity Class III (TRANSITION)**

**01 Natural Quality:** This zone is the most noticeably modified area in the wilderness yet is still characterized by a predominantly unmodified, natural environment. Ecological conditions in some areas are moderately to substantially affected by the actions of the users.

**02 Opportunities for Solitude and Primitive or Unconfined Recreation:** Primitive and unconfined recreation opportunities are available in the zone. Opportunities for isolation and solitude are moderate to low during peak use seasons, and are more abundant other times of the year. Encounters with other visitors are moderate to high during the peak use season. Traveling on existing system trails provide a low degree of challenge and risk. Inter-party contacts while traveling may be frequent and moderately frequent at campsites. Concentrations of campsites in heavily traveled areas and at destinations is moderately high. Moderate soil compaction and loss of vegetation, litter and duff occurs on many user created routes, campsites and livestock use areas. Impacts likely persist from year to year. Minimal erosion occurs on disturbed sites. Visitor education located inside of wilderness contributes to the understanding of rules and regulations. Users may find designated campsites and camping related regulations. Signs used for resource protection are present in these areas. Trails accommodate moderate to heavy use levels. Trail structures provide for user safety or resource protection. There may be moderate density of social trails within this zone, typically associated with camping areas or popular destinations.

**03 Undeveloped:** Administrative structures may be present in order to protect wilderness resource values (e.g., hitch rails at heavy use stock destination, food storage poles, and corrals at assigned outfitter sites). No other permanent structures are present, except pre-existing permitted structures such as water features, corrals, fence, and existing administrative work sites. Administrative facilities in the Absaroka-Beartooth are present only at the currently existing administrative sites which pre-date designation (Hellroaring, Buffalo Fork, and Slough Creek Cabins). In the Lee Metcalf, the only administrative facility is the McAtee Cabin.

**04 Untrammelled:** Management presence to minimize impacts from visitors is more noticeable.

## Recommended Wilderness Areas (RWA)

### Introduction

Recommended wilderness areas are lands that have the potential to become designated as official wilderness through legislation. The Forest Service only recommends these lands to the U.S. Congress for consideration. Congress, and ultimately the president, must establish legislation through a wilderness bill. Table 2-20 displays the recommended wilderness areas of the proposed action.

**Table 2-20. Recommended wilderness areas**

Recommended Wilderness Area	Geographic Area	Acres
Lost Water Canyon	Pryor Mountains	6,804
Line Creek Plateau	Absaroka Beartooth Mountains	801
Red Lodge Creek-Hell Roaring	Absaroka Beartooth Mountains	802
Mystic Lake	Absaroka Beartooth Mountains	247
Republic Mountain	Absaroka Beartooth Mountains	388
Gallatin Crest	Madison, Gallatin, Henrys Lake Mountains	70,614
Sawtooth	Madison, Gallatin, Henrys Lake Mountains	14,827
Taylor Hilgard	Madison, Gallatin, Henrys Lake Mountains	4,466
Lionhead	Madison, Gallatin, Henrys Lake Mountains	17,983
Total Acres of Recommended Wilderness Areas		116,392

### Desired Conditions (FW-DC-RWA)

- 01** Recommended wilderness areas maintain their existing ecological and social wilderness characteristics, so as to preserve opportunities for inclusion in the National Wilderness Preservation System.
- 02** Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting.
- 03** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.

- 04** System trails support wilderness experiences and preserve wilderness characteristics. Outfitter and guide recreation special uses support identified public need and provide service to the extent necessary for realizing the recreational purposes of the recommended wilderness areas.

#### **Standards (FW-STD-RWA)**

- 01** New commercial communication sites shall not be allowed.
- 02** The removal of mineral materials shall not be allowed.
- 03** Construction of new roads shall not be allowed.
- 04** New energy/utility corridors shall not be allowed.
- 05** New recreation events shall not be allowed.
- 06** New commercial filming and new commercial still photography shall not be allowed.
- 07** New recreation developments shall not be allowed, aside from new or replacement trail infrastructure.

#### **Guidelines (FW-GDL-RWA)**

- 01** New range improvements associated with existing allotments should be authorized only for the purpose of enhancing wilderness character or for resource protection.
- 02** New commercial filming and still photography are only authorized for the purpose of promoting wilderness.

#### **Suitability (FW-SUIT-RWA)**

- 01** Recommended wilderness areas are not suitable for timber production and timber harvest is not allowed.
- 02** Recommended wilderness areas are suitable for use of motorized equipment (such as use of chain saws to clear trails) and mechanized transport to accomplish restoration activities, to accomplish administrative work or for maintenance of livestock allotment infrastructure where practical non-motorized alternatives do not exist.
- 03** Permitted livestock use is suitable in those portions of recommended wilderness areas where grazing is authorized by permit prior to the area being identified as recommended wilderness.
- 04** Recommended wilderness areas are not suitable for motorized or mechanized recreation.
- 05** Recommended wilderness areas are not suitable for developed recreation sites, such as recreation rental cabins.
- 06** Administrative facilities are suitable only for the purposes of administration of the recommended wilderness areas.
- 07** Recommended wilderness areas are not suitable for commercial communication facilities.
- 08** Recommended wilderness areas are not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes or in approved research projects.

## Eligible Wild and Scenic Rivers (WSR)

### Introduction

As a required step in any Forest Plan revision, a study is conducted to determine if any of the “named rivers on the 7.5 min USGS maps” are found “eligible” as a wild and scenic river. If so, those rivers will be managed within the Forest Plan to retain their eligible status. A tentative classification (wild, scenic or recreational) will be determined. For eligible rivers, National Forest lands in a 0.25-mile wide on either bank corridor will be managed to protect the identified river-related outstandingly remarkable values, tentative classification, along with retaining the free-flowing nature of the waterway. Table 2-21 summarizes the potential eligible wild and scenic rivers, and detailed information about the eligibility study, including maps, is found in appendix E.

**Table 2-21. Potential eligible wild and scenic rivers**

<b>River Name</b>	<b>River #</b>	<b>Location</b>	<b>Eligible Prior Plan?</b>	<b>ORVs<sup>1</sup></b>	<b>Tentative Classifications</b>
Bark Cabin Creek	19	Gallatin Mountains	No	F	Wild
Bear Creek	32	Pryor Mountains	No	W	Scenic
Big Creek	46	Gallatin Mountains	No	F	Wild
Big Timber Creek	50	Crazy Mountains	No	R, S	Recreational
Boulder River	68	Absaroka Beartooth Mountains	Yes	R, S, G, H	Recreational
Cabin Creek	100	Madison Mountains	No	F	Scenic
Cave Creek	123	Pryor Mountains	No	G	Wild
Clarks Fork Yellowstone River	137	Absaroka Beartooth Mountains	Yes	S	Wild, Recreational
Crooked Creek	182	Pryor Mountains	Yes	G, S, H, F	Scenic
East Rosebud Creek	265	Absaroka Beartooth Mountains	Yes	R, S	Wild, Recreational
Gallatin River	323	Gallatin/Madison Mountains	Yes	R, S, H	Recreational
Hyalite Creek	395	Gallatin Mountains	No	R, S	Scenic
Lake Abundance Creek	419	Absaroka Beartooth Mountains	No	F	Wild
Lake Fork of Rock Creek	421	Absaroka Beartooth Mountains	Yes	R, S	Wild, Recreational
Lost Water Creek	471	Pryor Mountains	Yes	S, G, H	Wild, Scenic
Madison River	475	Madison Mountains	Yes	R, G, S, H, W	Recreational
Maid of the Mist Creek	477	Gallatin Mountains	No	R, S	Scenic
Middle Fork Cabin Creek	502	Madison Mountains	No	F	Scenic
Pine Creek	626	Absaroka Beartooth Mountains	No	R, S	Wild, Recreational
Rock Creek	668	Absaroka Beartooth Mountains	No	R, H, S	Recreational
Rock Creek	665	Absaroka Beartooth Mountains	No	F	Wild
Shower Creek	719	Gallatin Mountains	No	R, S	Scenic



Custer Gallatin National Forest Proposed Action—Revised Forest Plan

River Name	River #	Location	Eligible Prior Plan?	ORVs <sup>1</sup>	Tentative Classifications
Slough Creek & unnamed tributaries	737	Absaroka Beartooth Mountains	No	F	Wild, Scenic
Stillwater River	818	Absaroka Beartooth Mountains	Yes	R, S	Wild, Recreational
West Boulder River	889	Absaroka Beartooth Mountains	No	R	Wild
West Fork Rock Creek	908	Absaroka Beartooth Mountains	Yes	H, S	Wild, Recreational
West Fork Stillwater River	909	Absaroka Beartooth Mountains	No	S	Wild
West Rosebud Creek	916	Absaroka Beartooth Mountains	Yes	S, R	Wild
Woodbine Creek	931	Absaroka Beartooth Mountains	No	R, S	Wild, Recreational
Wounded Man Creek	933	Absaroka Beartooth Mountains	No	F	Wild
Yellowstone River	940	Absaroka Beartooth Mountains/Gallatin Mountains	Yes	R, S, H	Recreational

<sup>1</sup> Outstandingly remarkable values: F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage; W = Wildlife.

### Desired Conditions (FW-DC-WSR)

- 01** Eligible wild, scenic, or recreational rivers retain their free-flowing status, tentative classification, and the outstandingly remarkable values for which they have been identified.
- 02** Public information contributes to the understanding and appreciation of the Forest's eligible wild and scenic rivers.

### Goals (FW-GO-WSR)

- 01** Through partnerships with other agencies, organizations, and volunteers, eligible wild and scenic rivers maintain and enhance their outstandingly remarkable values.

### Guidelines (FW-GDL-WSR)

- 01** Fish barriers may be constructed on eligible rivers if the tentative classification is retained and shoreline development of the barrier would not lower the classification.

### Suitability (FW-SUIT-WSR)

- 01** Eligible rivers corridors are not suitable for timber production. All eligible river segments may have trees cut for trail maintenance needs including trail bridge construction.
- 02** Timber harvest may be allowed in eligible Scenic and Recreational river segments for purposes such as fuels reduction, restoration, or wildlife habitat enhancement if the current tentative classification is not lowered and the outstandingly remarkable values of the river segment are protected.

## Inventoried Roadless Areas (IRA)

### Introduction

The 2001 Roadless Area Conservation Rule (Roadless Rule) established prohibitions and permissions on road construction, road reconstruction, and timber harvesting on 58.5 million acres of national forest lands across the United States. This includes approximately 847,420 acres of inventoried roadless areas on the Custer Gallatin National Forest. The intent of the Roadless Rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management. Specifically, the Roadless Rule prohibits activities that have the greatest likelihood of altering and fragmenting landscapes, resulting in immediate, long-term loss of roadless area values and characteristics; eliminates permanent road construction and reconstruction, thereby reducing fiscal demands and responsibilities; and reduces controversy over management of roadless areas. Inventoried roadless areas are identified in a set of inventoried roadless area maps in Forest Service Roadless Area Conservation, Volume 2 (November 2000), which are held at the national headquarters office of the Forest Service, or any subsequent update or revisions of those maps (36 CFR 294 subpart B, published at 66 *Federal Register* 3244-3273). Maps of the inventoried roadless areas can be found in appendix B. Management activities follows direction found in the 2001 Roadless Rule (36 CFR 294 subpart B, published at 66 *Federal Register* 3244-3273).

The approximately 847,420 acres of lands within inventoried roadless areas constitute approximately 28 percent of the Forest. Table 2-22 identifies each inventoried roadless area, its location within the planning area, and the number of acres of the inventoried roadless area.

**Table 2-22. Inventoried roadless areas within the plan area**

<b>Geographic Area (GA)</b>	<b>Acres</b>
Sioux	0
Ashland	39,234
Pryor Mountains	10,421
Absaroka Beartooth Mountains	271,930
Bridger, Bangtail Crazy Mountains	129,343
Madison, Gallatin and Henrys Lake Mountains	393,804
Total	847,420

**Desired Conditions (FW-DC-IRA)**

- 01** Inventoried roadless areas provide primitive and semi-primitive settings. A diversity of recreation opportunities are available, including both motorized and non-motorized trail opportunities.

**Suitability (FW-SUIT-IRA)**

- 01** Inventoried roadless areas are not suitable for timber production. Timber harvest may be allowed for other resource benefits consistent with the 2001 Roadless Area Conservation Rule.
- 02** Inventoried roadless areas are not suitable for road reconstruction or new permanent road construction, except for the exceptions listed in the 2001 Roadless Area Conservation Rule.

**National Recreation Trails (NRT)****Introduction**

The Custer Gallatin National Forest has 12 national recreation trails designated by the regional forester as part of the national system of trails authorized by the National Trails Systems Act. There are a total of 73 miles of existing national recreation trails on the Custer Gallatin National Forest.

**Desired Conditions (FW-DC-NRT)**

- 01** National recreation trails provide for public opportunities such as interpretation and education, which do not impair the feature(s) or values for which the individual trail was established.

**Research Natural Areas (RNA)****Introduction**

The Custer Gallatin National Forest has ten existing research natural areas, which total approximately 29,650 acres (see Table 2-23). These research natural areas are part of a national network of ecological areas designated in perpetuity for research, education, and/or to maintain biological diversity of national forest lands. They serve as baseline areas for non-manipulative research, observation, and study.

Forest Service Manual 4063 and applicable NEPA decisions and research natural areas establishment records provide management guidance for these areas. Research natural areas are cooperatively managed with the Rocky Mountain Research Station. All proposals for research or management activities in research natural areas need to follow direction outlined in Forest Service Manual 4063 and must be approved by the Rocky Mountain Research Station Director. All proposals for research in research natural areas in wilderness areas need to also follow direction outlined in Forest Service Manual 2323.

There are currently no proposed research natural areas. Other additions to the network may be identified in the future.

**Table 2-23. Currently designated research natural areas**

<b>Name</b>	<b>Geographic Area (Ranger District)</b>	<b>Purpose for Establishment</b>	<b>Acres</b>
Palace Butte	Madison, Gallatin Henrys Lake (Bozeman Ranger District)	Subalpine wetlands, waterfalls, geologic features, subalpine forest and meadows	1,280
Wheeler Ridge	Madison, Gallatin Henrys Lake (Bozeman Ranger District)	Old-growth whitebark pine	640
Black Butte	Madison, Gallatin Henrys Lake (Hebgen Lake Ranger District)	Large, sometimes multiple-stemmed whitebark pine, dry subalpine forest habitat types	510
Obsidian Sands	Madison, Gallatin Henrys Lake (Hebgen Lake Ranger District)	Excellent example of the lodgepole pine/bitterbrush habitat type on obsidian sand benchland	390
East Fork of Mill Creek	Absaroka-Beartooth (Yellowstone Ranger District)	Engelmann spruce and Douglas-fir with whitebark pine understory	882
Passage Creek	Absaroka-Beartooth (Yellowstone Ranger District)	Engelmann spruce, Douglas-fir, and subalpine fir upland and riparian forests	1,112
Sliding Mountain	Absaroka-Beartooth (Yellowstone Ranger District)	Spruce, subalpine fir, lodgepole pine, and Douglas-fir occurs. A sizable shrubland and grassland is present. Dominant species include mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. Several avalanche chutes occur on the north face of Sliding Mountain.	1,459
Line Creek Plateau	Absaroka-Beartooth (Beartooth Ranger District of the Custer Gallatin National Forest, Montana; and Clark's Fork Ranger District of the Shoshone National Forest, Wyoming)	Extensive areas of alpine tundra vegetation, a cirque basin with alpine lakes and ponds, and many unique plant species. Nine alpine, seven coniferous, and one shrubland vegetation types fulfill requirements for the Northern Region Research Natural Area network.	21,704 (19,369 CGNF; 2,335 SNF)
Lost Water Canyon	Pryor Mountains (Beartooth Ranger District)	Encompasses nearly an entire watershed in pristine condition. Includes Douglas-fir near its eastern most extent and interrupted stream system in karst topography.	3,645
Poker Jim	Ashland (Ashland Ranger District)	Eastern ponderosa pine forest; native grassland and shrubland communities dominated by big sagebrush, silver sagebrush and wheatgrasses.	363

### Desired Conditions (FW-DC-RNA)

- 01** Research natural areas provide opportunity for research, study, observation, and monitoring of natural-occurring ecological processes.
- 02** Ecological processes that drive the functional and structural patterns of research natural area ecosystems are present and functioning to support sustainability and resiliency.

### Goal (FW-GO-RNA)

- 01** The Forest Service will continue to coordinate and consult with Rocky Mountain Research Station to protect and manage the ecological features and values for which each research natural area was established in accordance with the establishment records.

### Standards (FW-STD- RNA)

- 01** New recreation events shall not be allowed in research natural areas.
- 02** New special uses shall not be permitted except those issued for approved research projects. An exception exists within the Line Creek Plateau Research Natural Area (see “Absaroka Beartooth Mountains Geographic Area, Line Creek Plateau Research Natural Area” section for the exception).
- 03** New special use occupancy which requires constructed facilities shall not be permitted. In rare instances, temporary gauging stations and instrument shelters may be allowed for approved research projects.
- 04** New wildlife or fish habitat improvement projects shall not be permitted in research natural areas, except to meet the needs of approved research projects associated with the management of the research natural area.
- 05** Only permitted livestock grazing operations that predate research natural area establishment immediately prior to research natural area establishment may continue. In these cases, a level of acceptable casual or incidental livestock use that can be tolerated is established and is consistent with desired conditions for the research natural area.
- 06** New range improvement construction shall not be permitted. Boundary fencing is permitted for protection against livestock use that conflicts with purposes for which the research natural area was established.
- 07** New insect and disease management measures shall not occur in research natural areas unless epidemic populations exist and adjacent lands are severely threatened.
- 08** New permits shall not be issued for the removal of mineral materials.
- 09** New energy/utility corridors shall be located outside of research natural areas.

### Guidelines (FW-GDL- RNA)

- 01** Minimum impact fire suppression techniques should be used to minimize suppression impacts. Methods that employ ground disturbing machinery should normally not be used.
- 02** Use of retardant within research natural areas should be avoided to minimize potential impacts to high valued resources for which the area was designated.

### Suitability (FW-SUIT-RNA)

- 01** Research Natural Areas are not suitable for timber production. Timber harvest or other vegetation management activities (such as prescribed fire) may only be allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the research natural area.
- 02** Research Natural Areas are not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes or in approved research projects.

## Special Areas (SA)

### Introduction

The Custer Gallatin National Forest has two designated special areas, which total approximately 3,773 acres. These special areas are designated for research and education of botanical and paleontological resources. There are currently no proposed special areas. Other areas may be identified in the future. Each special area is managed as an integral part of the National Forest System with emphasis on its unique values. Other values or resources in the area are managed to a level compatible with the area's primary values and overall national forest management objectives. Forest Service Manual 2370 and applicable NEPA decisions and designation orders provides management guidance for these areas. Table 2-24 displays administratively designated special areas.

**Table 2-24. Designated special areas**

Name	Geographic Area (Ranger District)	Purpose for Establishment	Acres
Bangtail Botanical and Paleontological Special Area	Bridger, Bangtail, and Crazy Mountains (Bozeman Ranger District)	Provides an excellent opportunity for research and interpretation of important botanical features and paleontological finds.	3,366
Black Sand Spring Botanical Special Area	Madison, Henry, Gallatin (Hebgen Lake Ranger District)	<i>Spring Creek Riparian Vegetation.</i> Black Sand Spring Special Interest Area is adjacent to the Madison Fork Ranch Conservation Easement (The Nature Conservancy) and provides added value to the overall conservation of the ecological integrity around the South Fork of the Madison River.	407

### Desired Conditions (FW-DC-SA)

- 01** Administratively designated special areas contribute identified unique values that are worthy of preserving.
- 02** Administratively designated special areas contributes opportunities for research, study, observation, and monitoring of natural-features and unique values.

### Guidelines (FW-GDL-SA)

- 01** New improvements should be allowed only when they are necessary to maintain, restore or enhance the values for which the special area was designated.
- 02** Activities such as prescribed fire, forest vegetation management, and invasive species treatment should be only allowed when they perpetuate the natural diversity of plant communities.

### Suitability (FW-SUIT-SA)

- 01** Special areas are not suitable for timber production. Timber harvest or other vegetation management activities (such as prescribed fire) may be only allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the special area.

## National Natural Landmarks (NNL)

### Introduction

The National Natural Landmarks Program was established in 1962 to encourage the preservation of sites illustrating the geological and ecological character of the United States, to enhance the scientific and educational value of sites thus preserved, to strengthen public appreciation of natural history, and to foster a greater concern for the conservation of the nation's natural heritage.

Three national natural landmarks are located on the Custer Gallatin: Capital Rock and the Castles National Natural Landmarks in the Sioux Geographic Area, and Middle Fork Canyon National Natural Landmark in the Bridger Mountains. More detail about each national natural landmark is found in Table 2-25.

**Table 2-25. National natural landmarks**

Name	Geographic Area	Purpose for Establishment	Acres
Middle Fork Canyon	Bridger, Bangtail, Crazy Mountains	Illustrates rocks deformed by the Earth's tectonic movement. Outstanding example of a canyon cut across the grain of the geologic structure by a superposed stream. Few places more clearly illustrate the effects of erosion and stream superposition. Eighty acres of the 960-acre landmark is national forest land.	80
Capital Rock	Sioux	Uniqueness of geologic formation due to uplift and erosion within the surrounding prairie environment. Remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene strata are well displayed.	244
The Castles	Sioux	Uniqueness of geologic formation due to uplift and erosion within the surrounding prairie environment. Steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie, the Castles contains exposed rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils.	940

### Desired Conditions (FW-DC-NNL)

- 01** National natural landmarks contribute unique geological and scenic features and offer a recreation opportunity.

### Goals (FW-GO-NNL)

- 01** The Custer Gallatin National Forest coordinates new development and management activities with the National Park Service.

### Standard (FW-STD-NNL)

- 01** New energy and utility corridors shall not be located in national natural landmarks.

### Suitability (FW-SUIT-NNL)

- 01** National natural landmarks are not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration or wildlife habitat enhancement.

## Recreation Emphasis Areas (REA)

### Introduction

Recreation emphasis areas typically offer a variety of quality recreation opportunities, including motorized and nonmotorized uses. The recreation opportunities are accessible to a wide range of users, in several seasons, and typically offer challenges to a wide range of skills. The areas may be regional, national, or international destinations, or may be close to higher population centers. Recreation emphasis areas close to population centers may offer opportunities for trail connections to communities.

Recreation emphasis areas may have a high density of human activities and associated structures. There may be roads, utilities, and trails as well as signs of past and ongoing activities of managed forest vegetation. Opportunities for solitude and a primitive experience may be limited near roads or trails due to frequent contact with other users. Recreation emphasis areas are listed below in Table 2-26 and are depicted in Appendix B.

**Table 2-26. Recreation emphasis areas**

Recreation Emphasis Area	Geographic Area	Acres
Main Fork Rock Creek	Absaroka Beartooth Mountains	6,911
Cooke City	Absaroka Beartooth Mountains	24,130
Main Boulder River	Absaroka Beartooth Mountains	7,448
Yellowstone River Corridor	Absaroka Beartooth / Gallatin Mountains	2,522
Hyalite	Madison, Gallatin, Henrys Lake Mountains	33,799
Gallatin Canyon	Madison, Gallatin, Henrys Lake Mountains	17,368
Hebgen Winter	Madison, Gallatin, Henrys Lake Mountains	72,576
Hebgen Lakeshore	Madison, Gallatin, Henrys Lake Mountains	14,230
Total Acres of Recreation Emphasis Area		178,985

### Desired Conditions (FW-DC-REA)

- 01** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to increasing recreation demand. Local communities can readily access these areas for a variety of motorized and nonmotorized experiences.
- 02** Trail systems connect communities to recreation emphasis areas.
- 03** Loop trail opportunities are available.
- 04** Educational programs are available for recreation users to learn about topics such as the prevention of spread of invasive species, wildlife-human conflicts, safe fire use, and sharing trails.
- 05** Vegetation conditions enhance the recreation experience, are resilient to disturbances, and promote low fire hazard to values at risk.

### Guideline (FW-GDL-REA)

- 01** To reduce the likelihood of establishing new visitor use patterns, temporary roads, skid trails and landings should be located and constructed to discourage new visitor use.



## Suitability (FW-SUIT-REA)

- 01** Recreation emphasis areas are suitable for a high density of recreation development.

## Land Status and Ownership and Land Uses

### Introduction

Land ownership is the basic pattern of public and private ownership of surface and subsurface estates. It refers to the ownership of land and interests in land. Land status is defined as the ownership record of title to lands, including withdrawals, rights, and privileges affecting or influencing the use and management of National Forest System lands. Land ownership status on National Forest System lands can change over time through land adjustments.

Under land adjustment programs, the Forest Service acquires and consolidates key tracts of non-Federal land to conserve valuable natural habitat, reduce the risk of permanent development in sensitive areas, and enhance public recreational opportunities. Under land adjustment programs, the Forest Service also secures permanent road and trail rights-of-way (easements) to assure the protection, administration and use of National Forest System lands and resources.

### Land Status and Ownership (LAND)

#### Desired Conditions (FW-DC-LAND)

- 01** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands.
- 02** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management.
- 03** Road and trail easements provide administrative and public access to National Forest System lands.
- 04** Posted boundaries of National Forest System lands and interests in lands (including roads, trailheads, and trails) reduces the potential for trespass and encroachment.
- 05** All Forest Service interests in lands, including conservation easements and water rights, are not devalued or lost subject to valid existing rights.

#### Objectives (FW-OBJ-LAND)

- 01** Every decade, acquire between one and five new roads or trail rights-of-way that are needed as high-priority access or would fill a gap in existing access to public lands.

### Land Uses (LAND USE)

#### Introduction

Special-use permits authorize the occupancy and use of National Forest System lands by private individuals or companies for a wide variety of uses such as roads, utility corridors, communications sites, and other private or commercial uses that cannot be accommodated on private lands.

All authorized uses on public lands are required, by law, to meet applicable environmental protection measures. For proposed activities that have the potential for disturbance to lands and resources, a project design is required and is subject to public environmental analysis, review, and monitoring.

### Desired Conditions (FW-DC-LAND USE)

- 01** Opportunities are available for a wide variety of land (non-recreation) special uses that include roads, water systems, research activities, utilities, energy transmission rights of way, and other public services, on lands that are suitable for these activities.
- 02** Energy corridors throughout the planning area improve the delivery of electricity, oil, and gas, and enhance the western electric transmission grid by improving reliability, reducing congestion, and contributing to the national electrical grid.

### Goal (FW-GO-LAND USE)

- 01** Encourage road user associations in areas where multiple landowners' access is prevalent.
- 02** Work with local county road authorities to provide access to lands that serve predominantly non-National Forest System purposes.
- 03** Coordinate with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.

### Guidelines (FW-GDL-LAND USE)

- 01** The Forest Service should consider granting landowner requests for reasonable access across national forest lands, especially in areas where public or administrative access needs exist, contingent upon receiving reciprocal access across the private land.
- 02** Vegetation treatment within corridors and along linear transmission facilities should meet facility safety requirements, provide for control of invasive species, and provide for revegetation in order to reduce visual impacts.
- 03** When authorizing new lands special uses or reauthorizing existing uses, include conditions to avoid or minimize adverse effects to fish, water, and riparian resources. If adverse effects to inland native fish, species of conservation concern, impaired water bodies, or stream habitat conditions are unavoidable, authorizations should require actions that result in re-establishment, restoration, mitigation, or improvement of conditions and processes to ensure that projects that degrade conditions also include measures to incrementally improve conditions. At the time of reauthorization, adjust existing authorizations to mitigate adverse effects to fish, water, and riparian resources as practicable.
- 04** Locate new hydropower support facilities outside of RMZs to reduce effects to fish, water, and riparian resources. Support facilities include any facilities or improvements (e.g., staging areas, transmission lines) not directly integral to its operation or necessary for the implementation of prescribed protection, mitigation, or enhancement measures.
- 05** If existing hydropower support facilities are located within the RMZs, at time of permit reissuance, reduce impacts on aquatic and riparian resources, e.g. move support facilities outside of RMZs or further from water bodies where feasible.

## Chapter 3. Proposed Geographic Area Direction

### Introduction

Individual places across the Custer Gallatin National Forest have their own unique characteristics and conditions. These places, referred to as “geographic areas” (GAs), define a landscape that people associate with on the Forest. Identifying direction for GAs provides a means for describing conditions and trends at a more local scale than Forestwide, if appropriate. Six GAs have been identified and are arranged from east to west (see Figure 3-1 and Table 3-1).

- Sioux (SX)
- Ashland (AL)
- Pryor Mountains (PR)
- Absaroka Beartooth Mountains (AB)
- Bridger, Bangtail and Crazy Mountains (BC)
- Madison, Henrys Lake and Gallatin Mountains (MG)

**Table 3-1. Acres within the six GAs on the Custer Gallatin National Forest**

<b>Geographic Area</b>	<b>Total Acres (All Ownerships)</b>	<b>National Forest System Acres within GA</b>	<b>% of GA in National Forest System Lands</b>
Sioux	178,625	164,460	92
Ashland	501,596	436,133	87
Pryor Mountains	77,944	75,067	96
Absaroka Beartooth Mountains	1,459,500	1,353,295	93
Bridger/Bangtail and Crazy Mountains	321,701	205,025	64
Madison, Henrys Lake and Gallatin Mountains	952,813	805,299	85

Each GA section provides an overview of the area, including distinctive roles and contributions. GA-specific desired conditions, and in some cases standards and guidelines, not covered by Forestwide direction, are also included. In all cases, please refer to the Forestwide direction first, followed by any specific GA direction that may apply. Each GA has a set of associated maps in Appendix B.

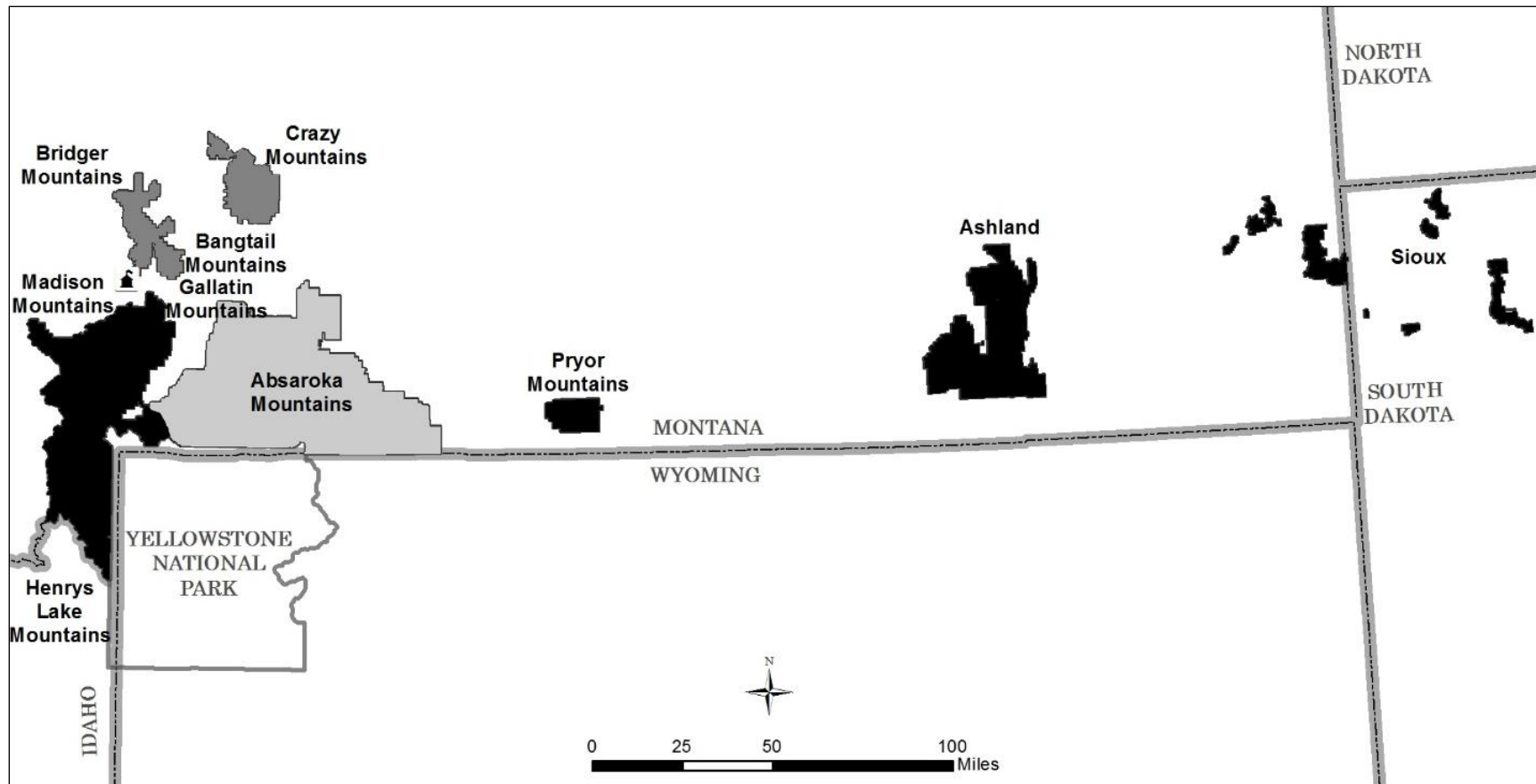


Figure 3-1. Custer Gallatin National Forest Geographic Areas

## Sioux Geographic Area

### General Overview

The Sioux District is comprised of eight geographically distinct land units in eastern Montana and western South Dakota. The national forest land in this area is surrounded by sparsely populated rangelands in Carter County, Montana, and Harding County, South Dakota. These units are separated by a mixture of State, private, and BLM-managed lands intersected by highways and county roads. Nearby towns include Ekalaka, Montana, and Camp Crook and Buffalo, South Dakota. Please see maps (appendix B) for detailed information.

### Distinctive Roles and Contributions

#### Ecological Characteristics

The Sioux GA stands out from the surrounding pine savanna because of the elevation and the ponderosa pines. Tree-covered “terrestrial islands” rise above the surrounding prairie. Most of the Sioux District drains to the Little Missouri, Grand, or Moreau Rivers.

Vegetation in this Pine Savanna Ecosystem includes ponderosa pine, green ash hardwood draws, and open, grassy uplands. Sandstone cliffs provide dramatic scenery. About 550 plant species can be found here.

Minor populations of paper birch (*Betula papyrifera*), a boreal species, are found on the Sioux Ranger District. These isolated, southern populations are a relic from the last ice age. The GA contains the eastern extent of Idaho fescue (predominantly a montane species) in Montana and northwest South Dakota and part of the western extent of big and little bluestems (predominantly tall grass prairie species). Unlike the montane units where cool season grasses dominate, there is a mix of cool season and warm season grasses found in this area. A transition zone occurs between the eastern edge of the sagebrush distribution and the western edge of the prairie. These sagebrush communities are on the periphery of their distribution which can be an important consideration for sage-grouse habitat management.

Several wide-ranging species that have been rare or absent from the Sioux landscape for decades have moved back into the area in recent years, including elk and mountain lion.

National Natural Landmarks identify and recognize the country’s best examples of ecological and geological features. The two National Natural Landmarks in this GA, Capital Rock and the Castles, each feature a unique geologic formation due to uplift and erosion within the surrounding prairie environment.

The 244-acre Capital Rock National Natural Landmark in the Long Pines is a remnant of the once continuous blanket of Tertiary deposits that covered much of the Great Plains. Late Cretaceous, Paleocene, Oligocene, and Miocene strata are well displayed.

The 940-acre Castles National Natural Landmark in the Slim Buttes contains steep-walled, flat-topped buttes standing 200 to 400 feet above the surrounding prairie. The Castles expose rock of Upper Cretaceous, Paleocene, Oligocene, and Miocene Ages. Cretaceous and Tertiary beds contain a variety of flora and fauna fossils.

## Social and Economic Characteristics

Rising out of the surrounding prairie, the higher elevation pine savanna of the national forest lands provides unique scenery in eastern Montana and northwestern South Dakota. The scenery of this GA is markedly different from the western part of the Custer Gallatin. The two national natural landmarks, Capital Rock and the Castles, contribute particularly unique scenery.

The Sioux District manages one of the largest national forest livestock grazing programs. Livestock grazing provides food for the country and contributes to local economies. Timber harvested on the district contributes to sawmill, log home, and post and pole production companies located within the supply-reach of the Forest. Two oil wells provide energy for the nation and contribute to local economies. Twelve large uranium mines from the 1950s and 1960s are currently being cleaned up under CERCLA authority. In addition, there are more than 350 smaller uranium exploration pits across the district. The GA has campgrounds and opportunities for hunting.

## Cultural and Historical Characteristics

The North Cave Hills has several National Register sites. The Lightning Spring Prehistoric Site revealed 15 buried components dating from Middle Archaic to Late Prehistoric, with most assigned to the Middle Archaic based on projectile point types and radiocarbon dates.

The proposed North Cave Hills Archaeological and Traditional Use District is considered a sacred landscape to the Tribes and their use of the unit showed that it qualified as a traditional cultural landscape. The proposed district contains 365 recorded archaeological sites of which 232 are either already listed or are considered contributing resources. Listed and contributing sites include approximately 105 petroglyph sites, 64 stone habitation sites, 15 prehistoric campsites, 3 bison kill sites, 1 stone alignment, 1 eagle trapping feature, 3 vision quest/fasting bed sites, a burial and cairn complex, 2 quarries, a ranger station, and 3 Civilian Conservation Corps-related complexes. The remaining 107 sites are unevaluated and are primarily unexcavated artifact scatters. Cultural material within the district range in age from Late Paleoindian period through the Historic Period. Traditional cultural use of the district is represented at Ludlow Cave, the petroglyph sites, and by least two cairns. The district nomination is currently under review by the South Dakota State Historic Preservation Office.

Forty-three petroglyph sites are included in the Prehistoric Rock Art of South Dakota Multiple Listing Nomination. Since this art must reflect the reality of prehistoric and protohistoric cultural development, the rock art record affords the student of past cultures an unprecedented data base from which to further explore many aspects of prehistoric human life. Within the traditional culture of the Lakota (Sioux) Indians, rock art is considered sacred; thus, rock art sites can be considered traditional cultural properties for many of the Native Americans now living in South Dakota.

The Chalk Buttes is under study as a cultural landscape. The 1994 Chalk Buttes assessment was to document the cultural and continuing significance of the Chalk Buttes area for the Tribes and for the Custer Gallatin that has stewardship responsibilities for the unit. Connections were made to the Medicine Rocks State Park to the north of the Chalk Buttes, and a recommendation to nominate the two locations as a discontinuous traditional cultural property district significant to the maintenance of ongoing traditional cultural practices of the Sioux and Northern Cheyenne. The traditional cultural practices were found to be grounded in the sacred past due to the spiritual characteristics of the area, and the historic past due to the historical cultural use of the area in the 1800s.

## Vision for the Sioux GA

The higher elevation, forested areas of national forest land offers distinct ecological conditions, wildlife habitat, and recreation settings from the surrounding plains. The land supports people economically

through grazing, timber, hunting and oil and gas production. The North Cave Hills and the Chalk Buttes are places of spiritual, ceremonial and traditional cultural importance to Tribes.

## Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for Forestwide direction of designated areas. Table 3-2 and associated map(s) (appendix B) display the designated areas in this GA.

**Table 3-2. Designated areas in the Sioux GA**

Designated Area	Acres	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
National Natural Landmarks	1,184	0.7	94

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number. Not applicable to linear features.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number. Not applicable to linear features.

## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. Please see chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 3-3 displays the percentage of each recreation opportunity spectrum class for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum class categories in this GA.

**Table 3-3. Recreation opportunity spectrum classes for the Sioux GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	0	0%	0	0%
Semi-primitive Nonmotorized	0	0%	0	0%
Semi-primitive Motorized	123,615	75%	123,615	75%
Roaded Natural	39,474	24%	39,474	24%
Rural	1,371	1%	1,371	1%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-4 displays the acreages; the locations of scenic integrity objectives for the Sioux GA are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-4. Scenic integrity objectives for the Sioux GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	0	0%
High	0	0%
Moderate	79,576	48%
Low	84,911	52%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. Please see chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. The Sioux GA contributes a small proportion of the Forestwide total area of lands suitable for timber production as displayed in Table 3-5.

**Table 3-5. Lands suitable for timber production in the Sioux GA**

	Acres	Percent of the GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	60,562	37	11

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Areas of Tribal Interest (TRIBAL)

### Desired Conditions (SX-DC-TRIBAL)

- 01** The North Cave Hills retains the characteristics and values that qualify it as a traditional use area and scared site.

### Guidelines (BC-GDL-TRIBAL)

- 01** New spring development in the Chalk Buttes should avoid springs used for traditional cultural purposes to minimize conflicts with traditional cultural practices.



## Ashland Geographic Area

### General Overview

The Ashland GA is located in Rosebud and Powder River Counties, Montana. The national forest is largely bordered by private land. The Northern Cheyenne Indian Reservation is to the west of the national forest. Nearby towns include Ashland, Lame Deer, Broadus and Colstrip, Montana. See maps (appendix B) for detailed information.

### Distinctive Roles and Contributions

#### Ecological Characteristics

The Ashland GA stands out from the surrounding prairie because of its higher elevation and the ponderosa pines. The Ashland District is bordered to the east by the Powder River and to the west by the Tongue River. It is dissected by Otter Creek, a tributary to the Tongue River.

The GA is one of the largest unbroken blocks of forested public land in eastern Montana. Vegetation varies from dense stands of ponderosa pine, green ash hardwood draws, and sagebrush to open, grassy uplands. Sandstone cliffs, ponderosa pines, grasslands, all interspersed by draws and ridges, are typical. About 50 percent of the area has the potential to be forested, but because of recent fires, forest cover is only 27 percent. The rest is a mix of shrubs, grasses, forbs and sparsely covered or non-vegetated areas. More than 470 plant species can be found here.

The GA contains a portion of the eastern extent of Idaho fescue (predominantly a montane species) in Montana and the western extent of big and little bluestems (predominantly tall grass prairie species). Unlike the montane units where cool season grasses dominate, there is a mix of cool season and warm season grasses found in this area.

The Ashland District has been significantly impacted by wildfires in recent years. Nearly 60 percent of the Ashland landscape has been affected by large fires since 1995. In 2012 alone, about one-third of this landscape area burned in the Ash Creek and Taylor Creek Fires. These large, recent fires have changed the amount and distribution of forest cover across the landscape, reducing the percent of land covered by forest from about 50 percent in 1995 to about 25 percent today. This change has probably changed the mix of wildlife in the area. For example, elk and woodpecker populations have increased dramatically in recent years.

#### Social and Economic Characteristics

Rising out of the surrounding prairie, the higher elevation pine savanna of the national forest lands provides unique scenery in eastern Montana. The scenery of this GA is markedly different from the western part of the Custer Gallatin.

The Ashland District manages one of the largest national forest livestock grazing programs. Livestock grazing provides food for the country and contributes to local economies. The water developments established for livestock, also support wildlife.

Timber harvested on the district contributes to sawmill, log home, and post and pole production companies located within the supply-reach of the Forest.

The elk herd has increased dramatically in the past 30 years, providing outstanding hunting opportunities. While hunting is one of the biggest recreational activities, this GA also has campgrounds, motorized trails, and opportunities for trapping.

## Cultural and Historical Characteristics

The Tongue River Breaks is currently under study as a cultural landscapes. The 2010 Northern Cheyenne Ethnogeography of the Tongue River/Powder River Plateau studied this area to understand the nature of the Northern Cheyenne connection to and use of the national forest, and to identify culturally sensitive locations that may require special preservation and protective measures. The study confirmed the importance of the landscape to the Tribe as well as a better understanding of the Northern Cheyenne “settlement” of the breaks through Cheyenne homesteading. Along with the Northern Cheyenne Reservation, the national forest is central to the Northern Cheyenne aboriginal territory, the “heart” of their original territory, and the place that the Northern Cheyenne chose for their final stronghold.

A number of Civilian Conservation Corps sites including roads, campgrounds, administrative sites, and trails were constructed by the Civilian Conservation Corps from 1933 through 1942 and due to their association, construction, and integrity qualify for nomination to the National Register.

## Vision for the Ashland GA

The higher elevation, forested areas of national forest land offers distinct ecological conditions, wildlife habitat and recreation setting from the surrounding plains. The land supports people economically through grazing, timber production, and hunting. The Cook Mountain, King Mountain and Tongue River Breaks areas offer a unique opportunity for non-motorized recreation. The Tongue River Breaks area contains important spiritual, traditional use and ceremonial sites for to the Northern Cheyenne Tribe.

## Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose, or management emphasis. See chapter 2 for Forestwide direction of designated areas. Table 3-6 and associated map(s) (appendix B) display the designated areas in this GA.

**Table 3-6. Designated areas in the Ashland GA**

Designated Area	Acres	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
Inventoried Roadless Areas	39,234	9	5
Research Natural Areas	363	0.1	1

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number. Not applicable to linear features.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number. Not applicable to linear features.

## Special Emphasis Areas

Special emphasis areas include areas such as, but not limited to, municipal watersheds or other areas with specific plan components and are displayed in Table 3-7. Maps are included in appendix B.

**Table 3-7. Special emphasis areas in the Ashland GA**

Special Emphasis Area	Acres	Percent of GA
Cook Mountain Backcountry Area	9,943	2.3%
King Mountain Backcountry Area	12,221	2.8%
Tongue River Breaks Backcountry Area	16,503	3.8%

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number.

## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 3-8 displays the percentage of each recreation opportunity spectrum class for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this GA.

**Table 3-8. Recreation opportunity spectrum classes for the Ashland GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	0	0%	0	0
Semi-primitive Nonmotorized	33,577	8%	33,577	8%
Semi-primitive Motorized	319,673	73%	319,673	73%
Roaded Natural	82,884	19%	82,884	19%
Rural	0	0%	0	0

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-9 displays the acreages; the locations of scenic integrity objectives for the Ashland GA are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-9. Scenic integrity objectives for the Ashland GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	0	0%
High	46,625	11%
Moderate	100,265	23%
Low	289,144	66%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in Table 3-10, roughly a third of this GA is identified as suitable for timber production, and this contributes a quarter of the Forestwide total area of lands suitable for timber production.

**Table 3-10. Lands suitable for timber production in the Ashland GA**

	Acres	Percent of the GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	177,409	41	31

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Ashland Backcountry Areas (ABCA)

### Introduction

The Cook Mountain, King Mountain, and Tongue River Breaks areas offer a unique opportunity for non-motorized recreation in a larger area that is mostly all available by vehicles. Rough topography has precluded much road and trail construction.

Vegetation is diverse, with ponderosa pine on the moist north slopes, mixed broadleaf tree/shrub/grass species along the creek bottoms and lower slopes, open grassy hillsides, sandstone outcrops with sparse shrubs and grasses. Ridges show some exposed shales and sandstones.

The Tongue River Breaks area contains important spiritual, traditional use and ceremonial sites for the Northern Cheyenne Tribe and is considered a traditional cultural landscape significant to the maintenance of ongoing traditional cultural practices of the Tribe.

### Desired Conditions (AL-DC-ABCA)

- 01** Natural processes play their role and human use leaves little permanent or long-lasting evidence.
- 02** Quiet, nonmotorized recreation opportunities predominate.
- 03** The physical environment and visual setting of the Tongue River Breaks provide the qualities of spiritual reflection, renewal, and sanctuary

### Standards (AL-STD-ABCA)

- 01** New facilities and developments shall avoid known cultural resource locations.
- 02** New roads shall not be constructed.
- 03** New energy or utility corridors shall not be allowed.
- 04** New commercial communication sites shall not be allowed.
- 05** New special uses shall be compatible with management of the backcountry area character.
- 06** New saleable mineral material removal shall not be allowed.
- 07** New access to and development of state or private minerals shall minimize impacts to backcountry areas subject to the outstanding rights of the mineral owners.

### Guidelines (AL-GDL-ABCA)

- 01** New trail construction may be allowed when it reduces impacts to soils and water resources resulting from off trail recreation use.
- 02** Recreation development should only occur for parking, sanitation, signing of legal access and horse holding and handling facilities.
- 03** New spring development in the Tongue River Breaks should avoid springs used for traditional cultural purposes, to minimize conflicts with traditional cultural practices.

- 04** To maintain the predominantly roadless and non-motorized character, new motorized access to maintain new structural range improvements should not be authorized except where occasional use of motorized equipment should be based on a rule of practical necessity and reasonableness, and be expressly authorized in the grazing permit.

**Suitability (AL-SUIT-ABCA)**

- 01** The backcountry areas are not suitable for motorized vehicle use, except vehicles for noxious weed control, for continued administration of grazing allotments, for construction and repair of structural range improvements, for access to and development of state or private minerals, and for timber harvest.
- 02** The backcountry areas are not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration, or wildlife habitat enhancement. The areas are suitable for harvest of limited quantities of posts and poles for construction or maintenance of authorized recreation or range facilities within the backcountry areas.

# Pryor Mountains Geographic Area

## General Overview

The Pryor Mountains is an island mountain range south of Billings, Montana. The national forest lands in the Pryor Mountains are located in Carbon County, Montana. A number of jurisdictions are associated with this relatively small landscape. The national forest lands are bordered to the north by the Crow Indian Reservation. To the west, south and east, the national forest is bordered primarily by BLM lands, and some private land. Administration of the Pryor Mountains Wild Horse Range is shared between the BLM, the Custer Gallatin National Forest, and the Bighorn Canyon National Recreation Area (National Park Service). Closest towns include Bridger, Warren, and Pryor, Montana, and Lovell, Wyoming. See maps (appendix B) for detailed information.

## Distinctive Roles and Contributions

### Ecological Characteristics

The Pryor Mountains are a place of climatic, physiographic, and geologic diversity resulting in exceptional biological diversity. Three floristic provinces converge here; the Northwestern Great Plains Province to the north and east, the Wyoming Basin Province to the south, and the Middle Rockies Province to the west. Each of these provinces possesses a unique climate and resulting floristic expression. The vegetation changes from the drier southern portion of Wyoming Basin desert shrubs, the drier eastern portions of the Northwestern Great Plains mid- and short-grass Pine Savannas, to the higher elevations of the Middle Rockies montane settings.

Pryor Mountain vegetation is largely influenced by sedimentary/limestone parent material. The setting is composed of subalpine meadows and ridges, montane coniferous forests, meadows, foothill shrublands and grasslands, and semi-desert vegetation. The area is about 60 percent forested, with the rest a mix of shrubs, grasses, forbs and sparsely vegetated areas. Within a relatively short distance of about 20 miles, one can find dramatically different vegetation types from semi-desert to subalpine areas.

The Pryor Mountains contain the eastern most extent of Douglas-fir in Montana and the northern most extent of Utah juniper (predominantly known from the Great Basin to the south). Found at the lower elevations of the national forest portion of the Pryor area, some species of desert plants reach the northern limit of their range. Many plant communities common in the Great Basin deserts reach their northern limit here.

Because of this unique convergence of three floristic provinces, the Pryor Mountains are considered a “botanical hotspot”, rich in species and community diversity. The Pryor Mountain flora was found to be more diverse than comparative floras. More than 400 plant species can be found here, including many that can only be found in this region.

While there are no bison or grizzly bears in the area, black bears and deer are abundant. The Pryor landscape represents a transition from the Montane to the Pine Savanna Ecosystem and contains a few notable Pine Savanna species such as eastern red bat, greater sage-grouse, and prairie vole.

The Pryor Mountains drain primarily to the Bighorn River; major waterways include the Crooked Creek, Sage Creek, and Bear Creek drainages. Sage Creek and Crooked Creek contain Yellowstone cutthroat trout. Bear Creek supports a great diversity of migratory and resident bird species. Crooked Creek and its tributaries, Cave Creek and Lost Water Creek, are dominated by karst topography.

The Pryor Mountains have the highest density of significant caves on the Custer Gallatin and within the Forest Service’s Northern Region. Four known significant caves contain ice.

### Social and Economic Characteristics

Road access is limited in the Pryor Mountains, and recreation use is relatively light compared to other parts of the Custer Gallatin. Recreation facilities include one developed campground, trails, and the Big Ice Cave and associated picnic area. The land is actively grazed. No timber harvest has occurred since the 1980s. Caves in the Pryor Mountains were mined for uranium in the past; no mineral development currently occurs in this GA. Visitors may view wild horses on the Pryor Mountain Wild Horse Territory.

The Pryor Mountains are important for scientific research and education. Due to the exceptional diversity in a small area, many researchers and educators in Earth Sciences have recognized its scientific value.

### Cultural and Historical Characteristics

The Pryor Mountains contain significant spiritual, traditional use, and ceremonial use sites for many Tribes including the Northern Cheyenne, Crow, Shoshone-Bannock, and Eastern Shoshone Tribes. It is considered a traditional cultural landscape integral to the maintenance of on-going traditional cultural practices of the Crow. The Pryor Mountains are used by the Crow Tribe on a regular basis for fasting, plant collection (medicinal), subsistence (teepee poles, fuel) and ceremonial (center pole for the sundance). Pryor Gap, just outside of Custer Gallatin lands, is significant not only in Crow history as a major travel route, but also having great spiritual significance since they believe it is the home of the Little People. Other areas of the Pryors are associated with fasting sites of individuals important to Crow history such as Plenty Coups.

Dryhead Overlook is a traditional cultural property with a series of vision quest/fasting beds, rock cairns, stone circles, and rock alignments located along the eastern scarp of East Pryor Mountain. Known to the Crow as the “Place Where They Saw the Rope” it is considered a sacred landscape to the Tribe, and is honored as a place where a number of Crow leaders and chiefs fasted in the difficult transition to reservation life. Recent offerings observed indicate the practice continues today.

### Vision for the Pryor Mountains GA

At the crossroads of three distinct ecological provinces, the Pryor Mountains offer exceptional biodiversity, unique geology, and opportunities for research and education. Limited road access to high elevation areas and limestone rimmed canyons offers visitors a sense of remoteness and discovery in backcountry areas. The Pryor Mountain wild horse herd is valued and observed by many people. Livestock grazing supports local ranches. Tribal members continue to have access to the Pryor Mountains for the exercise of reserved treaty rights, and the practice of spiritual, ceremonial and traditional cultural activities.

### Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for Forestwide direction of designated areas. Table 3-11 and associated map(s) (appendix B) display the designated areas in this GA. Acreages overlap for some designated areas.

**Table 3-11. Designated areas in the Pryor Mountains GA**

Designated Area	Acres	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
Inventoried Roadless Areas	10,421	14	1
Research Natural Areas	3,645	5	12
Wild Horse Territory	4,386	6	100

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number. Not applicable to linear features.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number. Not applicable to linear features.

## Recommended Wilderness

Table 3-12 and associated map(s) (see appendix B) display the recommended wilderness areas in this GA.

**Table 3-12. Recommended wilderness in the Pryor Mountains GA**

Area	Acres	Percent of GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lost Water Canyon	6,804	9%	6%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of total recommended wilderness Forestwide, rounded to the nearest whole number.

## Eligible Wild and Scenic Rivers

Table 3-13 and associated map(s) (see appendix E) display the eligible wild and scenic rivers in this GA.

**Table 3-13. Eligible wild and scenic rivers in the Pryor Mountains GA**

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s) <sup>1</sup>
Bear Creek	1.8	Scenic	W
Cave Creek	7.2	Wild	G
Crooked Creek	7.9	Scenic	G, S, H, F
Lost Water Creek	6.9	Wild, Scenic	S, G, H

<sup>1</sup> F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage, W = Wildlife.

## Special Emphasis Areas

Special emphasis areas include areas such as, but not limited to, municipal watersheds or other areas with specific plan components and are displayed in Table 3-14. Maps are included in appendix B.

**Table 3-14. Special emphasis areas in the Pryor Mountains GA**

Area	Acres	Percent of GA
Bear Canyon Backcountry Area	8,966	12%
Big Pryor Backcountry Area	7,904	10%
Punch Bowl Backcountry Area	4,875	6%



## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 3-15 displays the percentage of each recreation opportunity spectrum class for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this GA.

**Table 3-15. Recreation opportunity spectrum classes for the Pryor Mountains GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	0	0%	0	0%
Semi-primitive Nonmotorized	20,654	28%	20,654	28%
Semi-primitive Motorized	43,642	58%	43,642	58%
Roaded Natural	10,770	14%	10,770	14%
Rural	0	0%	0	0%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-16 displays the acreages, and the locations of scenic integrity objectives for the Pryor Mountains GA are displayed in the scenic integrity objectives maps (appendix B). Please refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-16. Scenic integrity objectives for the Pryor Mountains GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	7,010	9%
High	15,295	20%
Moderate	49,185	66%
Low	3,498	5%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. Please see chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in Table 3-17, the Pryor Mountains GA contributes a small proportion of the Forestwide total area of lands suitable for timber production.

**Table 3-17. Lands suitable for timber production in the Pryor Mountains GA**

	Acres	Percent of GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	16,360	22	3

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Pryor Mountain Wild Horse Territory

### Introduction

The Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195), as amended by the Federal Land Policy and Management Act of 1976 and the Public Rangelands Improvement Act of 1978, established wild free-roaming horses as a part of the natural system and are to be managed along with other multiple uses.

The Pryor Mountain Wild Horse Territory is a designated area on National Forest System lands that adjoins other portions of the overall Pryor Mountain Wild Horse Range, which is jointly managed with the BLM as lead agency and National Park Service (Bighorn Canyon National Recreation Area). Of the approximate 42,000-acre range, about 10 percent is comprised of National Forest System lands. The BLM, Forest Service, and National Park Service work cooperatively in the long-term management of the Pryor Mountain Wild Horse Range. Each agency has certain management and decision making authorities related to their respective roles and jurisdictions in the management of the range.

Wild horse viewing is a primary recreation activity that most often occurs during the warmer months of the year, especially during foaling season. Requests for special-use permits are becoming more common as more people wish to provide wild horse photography tours and viewing tours.

The Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195), as amended, 36 CFR 222, Forest Service Manual 2260, and the jointly developed BLM/Forest Service/National Park Service Wild Horse Range/Territory Herd Management Area Plan guides management of the Wild Horse Territory.

### Desired Conditions (PR-DC-WHT)

**01** Healthy rangelands support healthy wild horses.

### Goals (PR-GO-WHT)

- 01** Efficient and successful management of the entire Pryor Mountain wild horse range is conducted through interagency coordination and cooperation, with BLM as the lead agency.
- 02** The Forest Service coordination with the BLM, and other Federal/state agencies will continue to maintain or enhance wildlife habitat and population numbers in a manner which is compatible with wild horses, appropriate management level, and overall habitat conditions.

### Standards (PR-STD- WHT)

- 01** New roads or trails shall not be constructed.
- 02** New developed recreation facilities shall not be allowed.
- 03** New commercial mineral material permits shall not be issued. New personal use permits for removal of mineral materials may be allowed.
- 04** New energy/utility corridors shall not be located in this area.
- 05** New range improvements shall not attract horses into the Lost Water Canyon Research Natural Area or Lost Water Canyon Recommended Wilderness Area.

### **Suitability (PR-SUIT-WHT)**

- 01** Pryor Mountain Wild Horse Territory is not suitable for timber production. Timber harvest or fuels management may be used to achieve desired conditions such as for public safety, wild horse habitat enhancement, or ecological restoration.
- 02** Pryor Mountain Wild Horse Territory is not suitable for permitted livestock grazing.

## **Plan Components—Pryors Backcountry Areas (PBCA)**

### **Introduction**

The Bear Canyon, Punch Bowl, and Big Pryor Backcountry Areas contain a unique and diverse assemblage of natural resources within a relatively small area. Vegetation within these areas is characterized by arid grass and shrub lands which occupy the lowest elevations gradually giving way to well-developed stands of Douglas-fir at mid slope, while the upper most elevations within these backcountry areas may contain stands of subalpine fir.

These backcountry areas are unique geologically, due to their lack of alpine glaciation and occurrences of cave and karst resources and associated hydrologic features. Streams and water ways have carved deep incised limestone canyons which have historically deterred use and mechanized travel. These unroaded areas receive limited public use.

Like much of the Pryor Mountains, these area hold archaeological and cultural significance for Indian Tribes. Numerous historic and cultural sites, such as fasting beds, bison jumps, rock alignments, drive lines, cairns, and stone circle are found. Contemporary use by Crow Tribal members for the purposes of fasting, plant collecting, and subsistence activities are ongoing.

### **Desired Conditions (PR-DC-PBCA)**

- 01** Natural processes play their role and modern human use leaves little permanent or long-lasting evidence.
- 02** Quiet, nonmotorized recreation opportunities predominate.
- 03** Traditional Tribal uses are available in a largely undeveloped setting.

### **Standards (PR-STD-PBCA)**

- 01** New roads shall not be constructed.
- 02** New trails and recreation facilities shall not be constructed.
- 03** New energy or utility corridors shall not be allowed.
- 04** New commercial communication sites shall not be allowed.
- 05** New special uses shall be compatible with management of the backcountry area character.
- 06** New saleable mineral development shall not be allowed.
- 07** New access to and development of state or private minerals shall minimize impacts to the backcountry areas subject to the outstanding rights of the mineral owners.

### Guidelines (PR-GDL-PBCA)

- 01** To maintain the predominantly roadless and non-motorized character, new motorized access to maintain new structural range improvements should not be authorized except where occasional use of motorized equipment should be based on a rule of practical necessity and reasonableness, and be expressly authorized in the grazing permit.

### Suitability (PR-SUIT-PBCA)

- 01** The backcountry areas are not suitable for motor vehicle use, except vehicles for noxious weed control, for continued administration of grazing allotments, for construction and repair of existing structural range improvements, and for access to and development of state or private minerals.
- 02** The backcountry areas are not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration or wildlife habitat enhancement.

## Plan Components—Areas of Tribal Interest (TRIBAL)

### Desired Conditions (PR-DC-TRIBAL)

- 01** The Pryor Mountains maintain the characteristics and values that qualify it as a traditional use area.

## Absaroka Beartooth Mountains Geographic Area

### General Overview

The Absaroka Beartooth Mountains are located in Park, Sweet Grass, Stillwater, and Carbon Counties, Montana. This GA is bordered by private land to the west, north, and east, and to the south by Yellowstone National Park and the Shoshone National Forest in Wyoming. Nearby towns include Gardiner, Cooke City, Livingston, Big Timber, Columbus, and Red Lodge. The GA is part of the Greater Yellowstone Area.

This landscape area is characterized by distinct mountain ranges dissected by large rivers and streams. The highlands are composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill shrublands and grasslands. The Beartooth Mountains contain the highest peaks in Montana and the largest expanse of alpine plateaus in the lower 48 states. Through the valleys flow the Gallatin, Yellowstone, Boulder and Stillwater Rivers, and creeks such as East Rosebud, West Rosebud, and Rock Creek. The Absaroka-Beartooth designated wilderness area is found here.

Public access, numerous recreation facilities, and relative proximity to some of Montana's biggest towns (Bozeman and Billings) mean this area is highly visited. The only palladium and platinum mines in the country are located here. See maps (appendix B) for detailed information.

### Distinctive Roles and Contributions

#### Ecological Characteristics

The montane vegetation in the Absaroka and Beartooth Mountains is underlain by granitic, volcanic, and some sedimentary parent material. The setting is composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests (mainly cone-bearing trees), meadows, and foothill shrublands and grasslands. Overall, the landscape is about 70 percent forested; the rest is a mix of shrubs, grasses, forbs, and sparsely covered or non-vegetated areas. Montana Natural Heritage Program

cites 188 vegetation types around the mountainous areas. The alpine areas alone contain over 400 plant species.

The Beartooth Mountains are home to the highest peaks in Montana, with over 20 peaks exceeding 12,000 feet. Some 15 percent of the glaciers in the Northern Rockies are in the Beartooths. The Beartooth Mountains feature expansive alpine plateaus with unique plant communities and one of the largest number of tundra species occurring in the lower 48 states. Roughly 50 percent of the Beartooth Mountain flora is also found in the Arctic, while the flanks of Line Creek Plateau provide habitat for some of the Bighorn Basin endemic and globally rare species.

The Absaroka Mountains range about 150 miles from their northern end near Livingston, Montana, south to form the eastern boundary of Yellowstone National Park, and finally meeting the Wind River Range in Wyoming. The Absaroka Mountains are more highly dissected than the neighboring Beartooth Plateau.

The land drains to the Yellowstone River, through many large drainages including the Clark's Fork of the Yellowstone, Slough Creek, the Stillwater and Boulder Rivers, and East Rosebud, West Rosebud and Rock Creeks. Many streams contain native Yellowstone cutthroat trout; some with particularly important conservation populations.

The area is home to grizzly bears, wolverines, bison, bald eagles, gray wolves and bighorn sheep and most of the GA is Wilderness or inventoried roadless area. When coupled with nearby Yellowstone National Park and Wilderness on the Shoshone National Forest, the area provides a large expanse of largely undeveloped wildlife habitat.

### Social and Economic Characteristics

The Absaroka Beartooth GA has a history of timber, grazing, mining and recreation. Locatable mineral activities that take place on the Custer Gallatin contribute significant economic, social, and recreational benefits to local and regional interests. The Stillwater Complex contains the only palladium and platinum mine in the country, and one of three such mines in the world. The Stillwater Complex likely houses sufficient platinum and palladium resources necessary to support mining of these minerals for the next 30 to 50 years.

The high elevations are headwaters to the Yellowstone River and tributaries such as the Boulder and Stillwater Rivers. Vast snowpack contributes to downstream water use, including West Fork Rock Creek, the municipal water source for Red Lodge.

The spectacular landscape, public access, numerous recreation facilities and proximity to Yellowstone National Park make this GA an international destination. Coupled with relative proximity to some of Montana's biggest towns (Bozeman and Billings) means this area is highly visited in all seasons. Spectacular scenery is easily accessed, particularly from the Beartooth Highway, one of the most scenic drives in the country. Camping, motorized and nonmotorized trail use, hunting, fishing, rafting, skiing, snowshoeing, and snowmobiling are all popular activities. Red Lodge Mountain provides downhill skiing, and the Cooke City area is renowned for snowmobiling.

Over 900,000 acres are within the Absaroka-Beartooth Wilderness, offering exceptional opportunities for solitude and for primitive and unconfined recreation.

## Cultural and Historical Characteristics

National Register sites in the GA include the OTO Homestead and Dude Ranch, the Camp Senia Historic District, the Rock Creek Ranger Station, Red Lodge-Cooke City Approach Road, and Civilian Conservation Corps sites.

The OTO Homestead and Dude Ranch, located north of Gardiner, Montana, represents one of the first dude ranches in the West, perhaps the first in Montana and was an important early Dude Ranch in the Yellowstone Park area. The evolving dude ranch began humbly about 1898 at the homestead and grew into a business opportunity. Its hey-day was in the 1920s, and entertained America's wealthy, especially eastern bankers and businessmen, and European aristocracy.

The Camp Senia Historic District, located near Red Lodge, Montana, consists of 20 buildings and structures associated with the operation of the dude ranch from 1919 until 1929 and 10 historic buildings constructed under Forest Service special-use permits between circa 1922 and 1930. All the historic buildings represent the Western Rustic architectural style. The Rock Creek Ranger Station Historic District is also near Red Lodge, Montana, and is significant for its role as an administrative facility for the Rock Creek Ranger District of the Beartooth, and subsequent Custer National Forest, from 1908 to 1962.

The Red Lodge-Cooke City Approach Road (includes segment of the Beartooth National Forest Scenic Byway) was the first and most substantial road to be constructed under the Park Approaches Act, passed in 1931. Its completion in 1936, linking the town of Red lodge, Cooke City and Yellowstone Park, opened new territory for purposes of recreational development and substantially increased tourism in Yellowstone National Park and the region. Its presence facilitated the development of outdoor recreational facilities such as campgrounds, cabin lease sites, and trailheads on adjacent Forest Service lands, and furthered the use of these areas by private individuals traveling in their own vehicles. The Beartooth National Forest Scenic Byway segment has been dubbed by Charles Kuralt as “the most beautiful roadway in America”.

A number of developments including roads, campgrounds, administrative sites, and trails were constructed by the Civilian Conservation Corps from 1933 through 1942. Due to their association, construction, and integrity, many qualify for nomination to the National Register.

A segment of the Nez Perce National Historic Trail follows State Highway 212, from the Northeast Entrance of Yellowstone National Park, for approximately 8 miles, through Cooke City where it leaves the Custer Gallatin. The Nez Perce (Nimípuu or Nee-Me-Poo) National Historic Trail stretches from Wallowa Lake, Oregon, to the Bear Paw Battlefield near Chinook, Montana. The trail commemorates the 1877 flight of the non-treaty Nez Perce from their homelands in eastern Oregon, Idaho, and Washington across what are now the states of Idaho, Montana, and Wyoming.

## Vision for the Absaroka Beartooth Mountains GA

Largely wilderness and part of the greater Yellowstone ecosystem, the Absaroka Beartooth landscape provides outstanding opportunities for solitude, primitive recreation, and a diversity of wildlife species. Front country areas are actively managed transitioning to private land beyond the Forest boundary. Visitors find varied recreation opportunities, especially along rivers and streams. One of the world's few platinum and palladium mines co-exists on this landscape.

## Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for

Forestwide direction of designated areas. Table 3-18 and associated map(s) (appendix B) display the designated areas in this GA.

**Table 3-18. Designated areas in the Absaroka Beartooth Mountains GA**

Designated Area	Acres/Miles	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
Designated Wilderness	920,343	68	87
Inventoried Roadless Areas	271,930	20	32
Research Natural Areas	19,369	2	77
National Recreation Trails	12.5	n/a	10
National Historic Trails	8	n/a	50
National Forest Scenic Byway-All American Road	67	n/a	100

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number. Not applicable to linear features.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number. Not applicable to linear features.

## Recommended Wilderness

Table 3-19 and associated map(s) (see appendix B) display the recommended wilderness areas in this GA.

**Table 3-19. Recommended wilderness in the Absaroka Beartooth Mountains GA**

Area	Acres	Percent of the GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Line Creek Plateau	801	0.1%	0.7%
Red Lodge Creek-Hell Roaring	802	<1/10 <sup>th</sup> %	0.7%
Mystic Lake	247	<1/10 <sup>th</sup> %	0.2%
Republic Mountain	388	<1/10 <sup>th</sup> %	0.3%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of total recommended wilderness Forestwide, rounded to the nearest whole number.

## Eligible Wild and Scenic Rivers

Table 3-20 and associated map(s) (see appendix E) display the eligible wild and scenic rivers in this GA.

**Table 3-20. Eligible wild and scenic rivers in the Absaroka Beartooth Mountains GA**

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s) <sup>1</sup>
Boulder River	15.5	Recreational	R, S, G, H
Clarks Fork Yellowstone River	2.6	Wild, Recreational	S
East Rosebud Creek	17.0	Wild, Recreational	R, S
Lake Abundance Creek	7.4	Wild	F
Lake Fork of Rock Creek	13.3	Wild, Recreational	R, S
Pine Creek	4.4	Wild, Recreational	R, S
Rock Creek #668	11.4	Recreational	R, H, S
Rock Creek #665	4.8	Wild	F
Slough Creek & unnamed tributaries	16.3	Wild, Scenic	F
Stillwater River	23.3	Wild, Recreational	R, S
West Boulder River	12.3	Wild	R
West Fork Rock Creek	18.2	Wild, Recreational	H, S
West Fork Stillwater River	14.0	Wild	S
West Rosebud Creek	9.0	Wild	S, R
Woodbine Creek	1.3	Wild, Recreational	R, S
Wounded Man Creek	4.5	Wild	F
Yellowstone River	9.0	Recreational	R, S, H

<sup>1</sup> F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage, W = Wildlife.

## Special Emphasis Areas

Special emphasis areas include areas such as, but not limited to, municipal watersheds or other areas with specific plan components. Table 3-21 displays the special emphasis and permitted areas in this GA. Maps are included in appendix B.

**Table 3-21. Special emphasis areas in the Absaroka Beartooth Mountains GA**

Area	Acres	Percent of GA
Stillwater Complex	102,945	8%
West Fork Rock Creek Municipal Watershed	17,975	1%
Main Fork Rock Creek Recreation Emphasis Area	6,911	0.5%
Cooke City Recreation Emphasis Area	24,130	2%
Main Boulder River Recreation Emphasis Area	7,448	0.6%

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number.

## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity



spectrum and its associated plan components. Table 3-22 displays the percentage breakout of each recreation opportunity spectrum class for both summer and winter in this GA. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this GA.

**Table 3-22. Recreation opportunity spectrum classes for the Absaroka Beartooth Mountains GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	919,051	68%	913,533	68%
Semi-primitive Nonmotorized	213,903	16%	146,229	11%
Semi-primitive Motorized	116,669	9%	207,916	15%
Roaded Natural	57,948	4%	41,033	3%
Rural	45,698	3%	44,567	3%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-23 displays the acreages, and the locations of scenic integrity objectives for the Ashland GA are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-23. Scenic integrity objectives for the Absaroka Beartooth Mountains GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	918,770	68%
High	226,964	17%
Moderate	143,792	11%
Low	67,650	5%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in Table 3-24, the Absaroka Beartooth Mountains GA contributes a relatively small proportion of the Forestwide total area of lands suitable for timber production.

**Table 3-24. Lands suitable for timber production in the Absaroka Beartooth Mountains GA**

	Acres	Percent of GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	83,420	6	15

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Stillwater Complex (SWC)

The Stillwater Complex hosts significant base, precious, and strategic minerals and has been mined since the later portions of the 19<sup>th</sup> century. Currently, the area hosts the two largest underground metal mines in North America. Both of these mines are operated by the Sibanye Stillwater Mining Company. The Nye Mine was commissioned in 1986 while the East Boulder Mine was commissioned in 2003. Both operations produce platinum and palladium minerals used primarily in air pollution abatement technologies. Other uses include high speed electronic and investment metals.

The Stillwater Complex is unique in its geographic exposure, its continuity of ore grade, and scale of the mineral deposits. Given the most recent geologic and mineralogical assessments, it is likely that both of these large underground mines could be in operation throughout the lifespan of this Forest Plan. In recognition of the above information and the fact that mining produces specific surface and sub-surface types of disturbance inherent to the production of minerals, the Forest has determined that specific management direction for this area is warranted. See map, appendix B.

### Desired Conditions (AB-DC-SWC)

- 01** Exploration, development, and production of palladium and platinum contributes unique and globally rare minerals for a variety of societal needs, including air pollution control technology.
- 02** Palladium and platinum mineral resources provide commodities for current and future generations commensurate with conservation of other resources.

## Plan Components—Line Creek Plateau Research Natural Area

The Custer Gallatin National Forest portion of the Line Creek Plateau Research Natural Area predominantly exhibits a Rocky Mountain Alpine Tundra vegetation type with examples of alpine turf, alpine wetland, alpine snowbed, krumholtz, whitebark pine forest, and subalpine fir forest.

In addition to the Forestwide direction for research natural areas, the following direction pertains to the Custer Gallatin National Forest portion of the Line Creek Plateau Research Natural Area.

### Standards (AB-STD-RNA)

- 01** New special uses shall not be permitted except those issued for approved research projects.
- 02** Executive Order 5949 (November 1932) established a state easement extending 250 feet from either side of the centerline on U.S. Highway 212 within the Line Creek Plateau Research Natural Area. Staging areas for material stockpiles and equipment within the 250-foot centerline easement for future highway maintenance projects on Highway 212 shall only be allowed with mitigation for at-risk plant species.

### Suitability (AB-SUIT-RNA)

- 01** Hitching, tethering, or picketing horses or other livestock is not suitable within 200 feet of a stream or other free-flowing water.
- 02** Camping (including building a fire, other than fires confined to liquid fuel stoves) is not suitable within 200 feet of any lakeshore or 100 feet of any live stream or free-flowing water.
- 03** Mountain biking is only suitable on system trails.
- 04** Motorized vehicle use is only suitable on Highway 212 and to Line Creek Trailhead parking area.

- 05** Snowmobiles use is only suitable within the Highway 212, 250-foot centerline easement.
- 06** Fish stocking by Montana Fish, Wildlife, and Parks is only suitable in Line Lake which was stocked prior to research natural area designation.

## Plan Components—Beartooth National Forest Scenic Byways (NSB)

### Introduction

The 67-mile Beartooth National Forest Scenic Byway passes through a spectacular landscape rich in scenic, natural, cultural, historic and recreational opportunities. About 53 miles of this route, from Colter Pass on the west end to the National Forest boundary on the east end, are also recognized by the high distinction of All American Road. The drive is heralded as one of the most scenic drives in the U.S. and features breathtaking views of the Absaroka and Beartooth Mountains. Approximately 8 miles on the west end and 19 miles on the east end are within the Custer Gallatin.

The Beartooth All-American Road traverses the Custer Gallatin and Shoshone National Forests. It accesses Yellowstone National Park's northeast entrance and crosses the rugged Beartooth Mountains in Wyoming and Montana. The Highway possesses scenic, natural, historical, cultural, archaeological, and recreational qualities. It is the highest elevation highway in the Northern Rockies and provides dramatic views, extensive recreation opportunities, and supreme wildlife watching.

The Beartooth Highway is protected from new development by a 250-foot from centerline withdrawal on each side of the road. Under Executive Order 5949, the corridor was withdrawn from settlement, location, sale, entry or other disposal and was reserved for park approach road purposes.

### Desired Conditions (FW-DC-NSB)

- 01** The intrinsic scenic, natural, historical, cultural, archaeological, and recreational qualities for which the Beartooth National Forest Scenic Byway was designated are present on the scenic byway.

## Plan Components—Municipal Watershed (WTR)

### Desired Conditions (AB-DC-WTR)

- 01** West Fork Rock Creek provides a clean water supply for the city of Red Lodge.

## Bridger/Bangtail and Crazy Mountains Geographic Area

### General Overview

The Bridger, Bangtail and Crazy Mountains are characterized by island mountain ranges in Gallatin, Park, and Meagher Counties, Montana. The national forest is largely bordered by private land. Land ownership in the Crazy Mountains is a checkerboard pattern of national forest and private sections. The northern portion of the Crazy Mountains is administered by the Helena-Lewis and Clark National Forest. Nearby towns include Bozeman, Belgrade, Livingston and Big Timber, Montana. The GA is part of the Greater Yellowstone Area. See maps (appendix B) for detailed information.

## Distinctive Roles and Contributions

### Ecological Characteristics

This GA consists of three mountain ranges located north and northwest of Interstate Highway 90. The mountains are composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill grasslands. The Shields River separates the Bridger and Bangtail Mountains from the Crazy Mountains.

The Bridger Mountains rise from about 5,000 feet at their western base in the Gallatin Valley to just over 9,600 feet on Sacagawea Peak. The Bridger Mountains are capped by Mesozoic sedimentary rocks, which lie on top of Paleozoic and Precambrian formations. Madison limestone is exposed extensively in the range. The spectacular cirque above Fairy Lake is evidence of glaciation in the range. Vegetation types in the Bridgers include riparian woodlands and thickets, sagebrush-steppe, mountain grasslands, montane to alpine meadows, coniferous forests, and rock outcrops. Habitat on the west side of the range is somewhat warmer and drier and the higher elevation slopes are mostly unforested; the patchy coniferous forests are dominated by Douglas-fir. On the east side at upper elevations, Engelmann spruce and subalpine fir forests are common. The tree line in the Bridgers is generally around 9,000 feet and is somewhat lower on the east side of the crest. The highest elevations in the range support an alpine flora. Plants restricted to limestone substrates constitute another conspicuous element.

The Bangtail Mountains are adjacent to and east of the Bridger Mountains. Bangtails are lower in elevation and do not have the alpine ridges, mountain peaks, or cirques of the Bridgers and Crazy Mountains.

The Crazy Mountains are geologically unique in Montana, composed of resistant igneous intrusions and "hard baked sedimentary rocks". The igneous rocks in the northern part of the range are rich in sodium and potassium, but alkali metals are less abundant in the southern part of the range. The Crazy Mountains, like the Bridgers, were shaped by isolated mountain glaciers during the Pleistocene, and some small glaciers persist today. The Crazy Mountains are higher than the Bridgers, rising to over 11,000 feet on Crazy Peak. The vegetation is mainly coniferous forests, meadows, and foothill shrublands and grasslands. The patchy coniferous forests are dominated by Douglas-fir and lodgepole pine. On the east side at higher elevations, Engelmann spruce and subalpine fir forests are common, while the highest elevations in the range support alpine vegetation. The area is about 70 percent forested, with the rest a mix of shrubs, grasses, forbs and sparsely covered or non-vegetated areas. Land management is complicated by a checkerboard pattern of national forest and privately owned land.

Vegetation types include coniferous forests, montane to alpine meadows, seep areas, and most common of all, sparsely-vegetated rock faces, slides, and boulder fields. Highly developed alpine flora occurs in the basin of Sunlight Lake, where patches of tundra occur within the otherwise continuous rocky landscape.

These three mountain ranges include most native species and is a potential wildlife corridor between the Greater Yellowstone Ecosystem and other large blocks of wildlife habitat to the north, such as the Northern Continental Divide Ecosystem in northwest Montana.

The Bridger Mountains are a relatively narrow, isolated mountain range with a primarily north-south orientation. Prevailing westerly winds collide with the Bridger Range to create updrafts, producing a consistent lift that facilitates flight and attracts migrating raptors as they head south in autumn. The Bridger Mountain flyway is particularly noted for large concentrations of golden eagles, but as many as 18 different species of raptors have been observed migrating along the range. The concentration of

migrating raptors along the Bridger ridgeline was first documented in the early 1990s. The Forest Service has partnered with HawkWatch International, Montana Audubon, and Bridger Bowl Ski Area to operate an annual raptor migration count along the Bridger ridge since 1991. Raptors are important biological indicators of ecosystem health in that they occupy a wide range of habitat conditions. The Bridger Range count is part of an ongoing effort to monitor long-term population trends of raptors in this northern portion of the Rocky Mountain Flyway.

National natural landmarks identify and recognize the country's best examples of ecological and geological features. The 960-acre Middle Fork Canyon National Natural Landmark, located on the north end of the Bridger Mountains, features rocks that were deformed by tectonic movement. It is an outstanding example of a canyon cut across the grain of the geologic structure by a superposed stream. Few places more clearly illustrate the effects of erosion and stream superposition.

This GA also contains the Bangtail Botanical and Paleontological Special Interest Area which was designated for the area's Eocene-aged mammalian fossils and botanical values.

### Social and Economic Characteristics

With the proximity to growing towns such as Bozeman, Belgrade, and Livingston, recreation use is heavy, particularly in the Bridgers and Bangtails. The most visited national forest trail in Montana, the "M" trail is located in this GA. Both the popular Bridger Bowl Ski Hill and Bohart Nordic Ski Area are located in the Bridgers. Campgrounds and motorized and nonmotorized trails offer recreation access.

Land ownership in the Crazy Mountains is a checkerboard pattern of national forest and private sections. Consequently, public access and public facilities such as trails are fewer in the Crazy Mountains than the nearby Bridger and Bangtail Mountains.

Lyman Creek in the Bridger Mountains contributes to Bozeman's municipal water supply.

### Cultural and Historical Characteristics

The Crow Tribe call the Crazy Mountains Awaxaippia meaning "high landscape that is jagged or rough and have a bad reputation or omen". At least four prominent chiefs of the Crow Tribe fasted on the Crazy Mountains, and prophetic "dreams" received affected Crow National policies towards "American" government. Vision quest/fasting bed structures have been located on three prominent peaks within the Crazies and other sites have been found along the flanks of these high peaks that may be related to this traditional cultural practice.

### Vision for the Bridger/Bangtail and Crazy Mountains GA

The southern portion of the Crazy Mountains managed by the Custer Gallatin offers motorized and non-motorized recreation opportunities in a largely unroaded and undeveloped setting. The roaded northern Crazy Mountains is actively managed. The higher elevations of the Crazy Mountains provide for the exercise of reserved treaty rights, and the practice of spiritual, ceremonial and traditional cultural activities Crow Tribes. The Bridger and Bangtail Mountains offer a variety of motorized and non-motorized, summer and winter recreation opportunities close to one of the largest towns in Montana.

### Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose or management emphasis. See chapter 2 for Forestwide direction of designated areas. Table 3-25 and associated map(s) (appendix B) display the designated areas in this GA.

**Table 3-25. Designated areas in the Bridger/Bangtail and Crazy Mountains GA**

Designated Area	Acres/Miles	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
Inventoried Roadless Areas	129,343	63	15
Special Interest Area	3,366	2	89
National Natural Landmark	80	0.4	6
National Recreation Trail	20	n/a	16

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number.

## Eligible Wild and Scenic Rivers

Table 3-26 and associated map(s) (see appendix E) display the eligible wild and scenic rivers in this GA.

**Table 3-26. Eligible wild and scenic rivers in the Bridger/Bangtail and Crazy Mountains GA**

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s)
Big Timber Creek	1.1	Recreational	Recreation, Scenery

## Special Emphasis Areas

Special emphasis areas include areas such as, but not limited to, municipal watersheds or other areas with specific plan components and are displayed in Table 3-27. Maps are included in appendix B.

**Table 3-27. Special emphasis areas in the Bridger/Bangtail and Crazy Mountains GA**

Area	Acres	Percent of GA
Lyman Creek Municipal Watershed	5,895	3%

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number.

## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. See chapter 2 for a description of the recreation opportunity and its associated plan components. Table 3-28 displays the percentage breakout of each recreation opportunity spectrum class for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this GA.

**Table 3-28. Recreation opportunity spectrum classes for the Bridger/Bangtail and Crazy Mountains GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	0	0%	0	0%
Semi-primitive Nonmotorized	103,528	50%	81,489	40%
Semi-primitive Motorized	77,172	38%	99,186	48%
Roaded Natural	21,566	11%	21,587	11%
Rural	2,758	1%	2,763	1%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-29 displays the acreages; the locations of scenic integrity objectives for the Ashland GA are displayed in the scenic integrity objectives maps (appendix B). Please refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-29. Scenic integrity objectives for the Bridger/Bangtail and Crazy Mountains GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	0	0%
High	103,535	50%
Moderate	53,715	26%
Low	46,686	23%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in Table 3-30, while nearly a quarter of this GA is identified as suitable for timber production, this contributes a small proportion of the Forestwide total area of lands suitable for timber production

**Table 3-30. Lands suitable for timber production in the Bridger/Bangtail and Crazy Mountains GA**

	Acres	Percent of GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	59,154	29	10

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Municipal Watershed (WTR)

### Desired Conditions (MG-DC-WTR)

**01** Lyman Creek provides a clean water supply for the city of Bozeman.

- 02** Forest structure in the municipal watershed does not support high-intensity, stand-replacing fire and is resilient to forest insect and disease through maintenance of age, size class diversity, and species diversity.

**Goal (BC-GO-WTR)**

- 01** The Forest Service cooperates with the city of Bozeman in sustainable land management of the Lyman Creek municipal watershed.

**Plan Components—Wildlife (WL)**

**Desired Conditions (BC-DC-WL)**

- 01** The Bridger migratory flyway provides conditions that facilitate raptor migration southward each fall.

**Guideline (BC-GDL-WL)**

- 01** Except for emergency purposes (e.g., fire suppression, search and rescue, etc.), Forest Service-authorized aircraft should not fly less than 500 feet above the Bridger Mountain Range ridgeline, or land within 500 feet of the ridgeline, during the fall raptor migration (September 1 through October 31) in order to avoid aircraft collision with migrating raptors and minimize disturbance of raptors along this migratory route.

## **Madison, Henrys Lake and Gallatin Mountains Geographic Area**

### **General Overview**

The Madison, Henrys Lake, Gallatin Mountains GA is located in Madison, Gallatin, and Park Counties, Montana. The GA is bordered by the Beaverhead-Deerlodge National Forest to the west and private land to the north. This GA borders Idaho in the Henrys Lake Mountains, where the continental divide marks the boundary between the states. Yellowstone National Park borders this GA from the Idaho state line to the Yellowstone River. Nearby towns include West Yellowstone, Big Sky, Bozeman, Belgrade, Livingston, and Gardiner. The GA is part of the Greater Yellowstone Area. See maps (appendix B) for detailed information.

### **Distinctive Roles and Contributions**

#### **Ecological Characteristics**

The montane vegetation in the Madison, Henry's, and Gallatin Mountains is underlain by granitic, volcanic, and some sedimentary parent material. The setting is composed of alpine ridges, mountain peaks, cirques, moraines, tundra plateaus, coniferous forests, meadows, and foothill shrublands and grasslands. Montana Natural Heritage Program cites 188 vegetation types around the mountainous areas (Yellowstone Highland Ecological Setting). The alpine areas alone contain over 400 plant species.

The land is the headwaters of the Missouri River. Forest streams drain into the Madison, Gallatin and Yellowstone Rivers; major Missouri River tributaries. Many streams contain native Yellowstone or westslope cutthroat or arctic grayling; some with particularly important conservation populations.

Much of the GA is wilderness, wilderness study area, or inventoried roadless area. When unroaded lands of the Custer Gallatin are coupled with nearby Yellowstone National Park and wilderness on the Beaverhead-Deerlodge National Forest, it results in a large expanse of largely undeveloped wildlife



habitat. All of the native animals still roam free, including grizzly bears, gray wolves, and bison. The area is also home to wolverines, bald eagles, and bighorn sheep.

The Custer Gallatin National Forest is the only national forest occupied by wild bison for a portion of the year. Wild bison spend most of the year in Yellowstone National Park. During most winters, when food is limited by deep snow, bison migrate north into the Gardiner Basin and west into the Hebgen Basin. These two basins include portions of the Custer Gallatin National Forest.

A whitebark pine seed orchard has been located on the Custer Gallatin. Whitebark pine seedlings are being grown that naturally exhibit resistance to white pine blister rust, an imported pathogen that can weaken and kill whitebark pine trees. The seedlings are grown from seeds collected in this region. The seedlings will eventually be planted throughout the Greater Yellowstone Area.

### **Social and Economic Characteristics**

The Madison, Henrys Lake, and Gallatin Mountains GA helps support diverse economic opportunities related to timber, grazing, and recreation. The mountains are headwaters to the Yellowstone, Gallatin and Madison Rivers. Hyalite and Bozeman Creeks supply Bozeman with water, and Whiskey Spring is part of the West Yellowstone municipal water supply.

Proximity to growing towns such as Bozeman, Belgrade, Livingston and Big Sky coupled with two gateways to Yellowstone National Park (West Yellowstone and Gardiner), means this area is highly visited in all seasons. Hyalite Canyon offers easy access from Bozeman, and has world renowned ice climbing. Camping, rental cabins, motorized and nonmotorized trail use, hunting, fishing, boating, rafting, skiing, snowshoeing, and snowmobiling are all popular activities. West Yellowstone is a snowmobiling destination, for users of both Yellowstone National Park and national forests. The Gallatin Petrified Forest offers the public a rare opportunity to collect specimens of petrified wood.

Nationally designated trails include the Continental Divide National Scenic Trail, the Nez Perce National Historic Trail, and a number of National Recreation Trails, including the Two Top Loop Snowmobile Trail. The Custer Gallatin National Forest offers access to and camping near Hebgen Lake, one of the largest lakes in southwest Montana. The Earthquake Lake Visitor Center provides interpretation of the 1959 earthquake that formed Earthquake Lake.

Wild lands offer opportunities for solitude and primitive recreation. About 133,000 acres are within the Lee Metcalf Wilderness, and another 155,000 acres are contained in the Hyalite Porcupine Buffalo Horn Wilderness Study Area.

### **Cultural and Historical Characteristics**

A segment of the Nez Perce National Historic Trail crosses the Custer Gallatin in the southwestern area adjacent to Yellowstone Park. The Nez Perce (Nimípuu or Nee-Me-Poo) National Historic Trail stretches from Wallowa Lake, Oregon, to the Bear Paw Battlefield near Chinook, Montana. The trail commemorates the 1877 flight of the non-treaty Nez Perce from their homelands in eastern Oregon, Idaho, and Washington across what are now the states of Idaho, Montana, and Wyoming.

### **Vision for the Madison, Henrys Lake and Gallatin Mountains GA**

The land is part of the Greater Yellowstone Ecosystem, where grizzly bears, wolves, and bison roam. High elevations provide wilderness and non-wilderness type opportunities. Lower elevations are actively managed and provide a wide range of both summer and winter motorized and non-motorized recreation opportunities, especially near the communities of Bozeman, Big Sky, and West Yellowstone.

## Designated Areas

Designated areas are specific areas or features within the Forest that have been given a permanent designation to maintain its unique character, purpose, or management emphasis. See chapter 2 for Forestwide direction of designated areas. Table 3-31 and associated map(s) (appendix B) display the designated areas in this GA. Some acreages overlap different designations

**Table 3-31. Designated areas in the Madison, Henrys Lake and Gallatin Mountains GA**

Designated Area	Acres/Miles	Percent of GA <sup>1</sup>	Percent Forestwide Total <sup>2</sup>
Designated Wilderness	133,848 acres	17	13
Wilderness Study Area	143,965 acres	18	100
Cabin Creek Wildlife and Recreation Area	36,752 acres	5	100
Earthquake Lake Geologic Area	646 acres	<1/10%	100%
Inventoried Roadless Areas	393,804 acres	49	46
Research Natural Areas	2,820 acres	0.4	10
Special Interest Areas	407 acres	<1/10%	11
National Recreation Trails	95.1 miles	n/a	75
National Scenic Trails	28 miles	n/a	100
National Historic Trails	8 miles	n/a	50

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number. Not applicable to linear features.

<sup>2</sup> Percentage of total National Forest System lands of the same designation on the Forest, rounded to the nearest whole number. Not applicable to linear features.

## Recommended Wilderness

Table 3-32 and associated map(s) (appendix B) display the recommended wilderness areas in this GA.

**Table 3-32. Recommended wilderness in the Madison, Henrys Lake and Gallatin Mountains GA**

Area	Acres	Percent of the GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Gallatin Crest	70,614	9%	61%
Sawtooth	14,287	2%	12%
Taylor Hilgard	4,466	0.6%	4%
Lionhead	17,983	2%	15%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of total recommended wilderness Forestwide, rounded to the nearest whole number.

## Eligible Wild and Scenic Rivers

Table 3-33 and associated map(s) (see appendix E) display the eligible wild and scenic rivers in this GA.

**Table 3-33. Eligible wild and scenic rivers in the Madison, Henrys Lake, and Gallatin Mountains GA**

River	Miles	Tentative Classification	Outstandingly Remarkable Value(s) <sup>1</sup>
Bark Cabin Creek	3.7	Wild	F
Big Creek	13.6	Wild	F
Hyalite Creek	4.6	Scenic	R, S
Maid of the Mist Creek	1.4	Scenic	R, S
Shower Creek	1.3	Scenic	R, S
Gallatin River	39.6	Recreational	R, S, H
Cabin Creek	7.3	Scenic	F
Madison River	11.3	Recreational	R, G, S, H, W
Middle Fork Cabin Creek	5.1	Scenic	F
Yellowstone River	9.0	Recreational	R, S, H

<sup>1</sup> F = Fisheries, R = Recreation, S = Scenery, G = Geology, H = Heritage; W = Wildlife.

## Special Emphasis Areas

Special emphasis areas include areas such as, but not limited to, municipal watersheds or other areas with specific plan components. Table 3-34 and associated map(s) in appendix B display the special emphasis and permitted areas in this GA.

**Table 3-34. Special emphasis areas in the Madison, Henrys Lake and Gallatin Mountains GA**

Area	Acres	Percent of GA
Yellowstone River Corridor Recreation Emphasis Area	2,522	0.3%
Hyalite Recreation Emphasis Area	33,799	4%
Buffalo Horn Backcountry Area	24,183	3%
Gallatin Canyon Recreation Emphasis Area	17,368	2%
Hebgen Lakeshore Recreation Emphasis Area	14,230	2%
Hebgen Winter Recreation Emphasis Area	72,576	9%
Bozeman Creek Municipal Watershed	14,926	2%
Hyalite Creek Municipal Watershed	31,045	4%
Whiskey Spring Municipal Water Source	Point source	n/a

<sup>1</sup> Percentage of total National Forest System lands in the GA, rounded to the nearest whole number.

## Other Resource Emphasis Areas

### Recreation Opportunity Spectrum

The recreation opportunity spectrum influences the suitability of lands for various multiple uses or activities based on the desired conditions. Please see chapter 2 for a description of the recreation opportunity spectrum and its associated plan components. Table 3-35 displays the percentage breakout of each recreation opportunity spectrum class for both summer and winter. In addition, the associated map(s) (appendix B) display the recreation opportunity spectrum categories in this GA.

**Table 3-35. Recreation opportunity spectrum classes for the Madison, Henrys Lake and Gallatin Mountains GA**

ROS Class	Summer Acres	Summer Percent of GA <sup>1</sup>	Winter Acres	Winter Percent of GA <sup>1</sup>
Primitive	137,047	17%	133,824	17%
Semi-primitive Nonmotorized	317,686	39%	319,926	40%
Semi-primitive Motorized	196,449	24%	204,268	25%
Roaded Natural	109,212	14%	104,061	13%
Rural	44,816	6%	43,131	5%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Scenic Integrity Objectives

Table 3-36 displays the acreages, and the locations of scenic integrity objectives for the Ashland GA are displayed in the scenic integrity objectives maps (appendix B). Refer to FW-SCENERY for desired conditions and guidelines that apply to scenery.

**Table 3-36. Scenic integrity objectives for the Madison, Henrys Lake and Gallatin Mountains GA**

Scenic Integrity Objective	Acres	Percent of GA <sup>1</sup>
Very High	238,803	30%
High	226,930	28%
Moderate	245,662	31%
Low	93,822	12%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

### Lands Suitable for Timber Production

Lands suitable for timber production are areas where timber production is an appropriate management objective. See chapter 2 for information on timber suitability and plan components for harvest on lands identified as both suitable and unsuitable for timber production. As displayed in Table 3-37, a relatively large amount of this productive, forested GA is identified as suitable for timber production, and contributes a third of the Forestwide total area of lands suitable for timber production.

**Table 3-37. Lands suitable for timber production in the Madison, Henrys Lake, and Gallatin Mountains GA**

	Acres	Percent of GA <sup>1</sup>	Percent of Forestwide Total <sup>2</sup>
Lands Suitable for Timber Production	190,992	24%	33%

<sup>1</sup> Percentage of the total National Forest System lands found in the GA, rounded to the nearest whole number.

<sup>2</sup> Percentage of the total National Forest System lands suitable for timber production Forestwide, rounded to the nearest whole number.

## Plan Components—Cabin Creek Recreation and Wildlife Area (CCRW)

### Introduction

The Cabin Creek Recreation and Wildlife Management Area was designated by the Lee Metcalf Wilderness Act in 1983. Public law 98-140, October 31, 1983, established the Cabin Creek area for the purpose of wildlife and recreation. The 36,752-acre area encompasses Upper Wapiti Creek, Carrot Basin, and Cabin Creek. It is entirely within occupied grizzly bear habitat and contains important big game habitat.

The legislation placed emphasis on the recreation and wildlife values of the area. At the same time, the bill recognized the historical uses of the area. It was decided that the travel direction for the area was key, especially the use of motorized vehicles. The 2006 Gallatin Travel Plan decision allowed broad use of the Cabin Creek area by several different types of recreation users. It allows uses such as retrieving animals harvested during hunting season by motor bikes on designated routes or snowmobiles. Winter recreational use of snowmobiles and the Big Sky Snowmobile Trail continues as stated in the enabling legislation.

### Desired Conditions (MG-DC-CCRW)

- 01** Big game and grizzly bear habitat provides foraging and security to allow wildlife to coexist with human use of the area.
- 02** Wilderness character is present with the recreation opportunities provided for in the legislation.

### Standards (MG-STD-CCRW)

- 01** New permitted livestock grazing is not allowed.
- 02** New developed recreation sites shall not be allowed.
- 03** New utility or energy corridors shall not be allowed.
- 04** New commercial communication sites shall not be allowed.
- 05** New recreation events shall not be allowed.
- 06** New roads shall not be allowed.
- 07** New saleable mineral development shall not be allowed.

### Guidelines (MG-GDL-CCRW)

- 01** New recreation special uses should not detract from wildlife protection and wilderness character.

### Suitability (MG-SUIT-CR)

- 01** The Cabin Creek Recreation and Wildlife Area is not suitable for timber production and timber harvest is not allowed.
- 02** The Cabin Creek Recreation and Wildlife Area is not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes or in approved research projects.

## Plan Components—Wilderness Study Area (WSA)

### Introduction

The Custer Gallatin National Forest manages one congressionally designated wilderness study area, the 155,000-acre Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. This area is located in the core of the Gallatin Range, running north to Hyalite Canyon and south to the Yellowstone National Park boundary. This wilderness study area is approximately 36-miles long by 4- to 12-miles wide.

Direction for the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area states the need to manage the area consistent with the Montana Wilderness Study Act of 1977 which specified that, “subject to existing private rights, the wilderness study areas designated by this Act shall, until Congress determines otherwise, be administered by the Secretary of Agriculture so as to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System” (Public Law 95-150).

Per the Wilderness Study Act of 1977, the use of motor vehicles, aircraft and mechanical means of transport are allowed at levels in existence prior to the enactment of the Act; as long as the uses maintain the presently existing wilderness characteristics and potential for inclusion into the National Wilderness Preservation System. Permitted livestock use is allowed in those portions of wilderness study area where grazing had been established prior to the area’s designation.

Land within the wilderness study area may be assigned to more than one Forest Plan land allocation (e.g., designated area and special emphasis area. Where land allocations overlap, the following hierarchy is used to guide management in order of descending precedence.

- Recommended wilderness
- Wilderness study area
- Backcountry area
- Inventoried roadless area
- Recreation emphasis area

If the wilderness study area were to be released by Congress, the remaining Forest Plan allocations would apply.

### Desired Conditions (MG-DC-WSA)

- 01** Wilderness study areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.

### Standards (MG-STD-WSA)

- 01** New developed recreation sites shall not be allowed.
- 02** New energy or utility corridors shall not be allowed.
- 03** New recreation events shall not be allowed.
- 04** New roads and road reconstruction shall not be allowed.
- 05** New saleable mineral development shall not be allowed.

### Guidelines (MG-GDL-WSA)

- 01** Restoration activities (such as prescribed fire, active weed management) should protect and/or enhance the wilderness character of these areas.
- 02** Motorized and mechanized equipment (such as use of chain saws to clear trails) may be used to accomplish restoration activities or to accomplish administrative work.

### Suitability (MG-SUIT-WSA)

- 01** Wilderness study areas are not suitable for timber production and timber harvest is not allowed. The area is suitable for limited hazard tree removal.
- 02** Permitted livestock use and infrastructure maintenance is suitable in those portions of the wilderness study area only where grazing had been established immediately prior to the area's wilderness study area designation.
- 03** Wilderness study areas are not suitable for recreational and commercial drone launching and landings. Drone use may be allowed for administrative purposes or in approved research projects.

## Plan Components—Continental Divide National Scenic Trail (CDNST)

### Introduction

The Continental Divide National Scenic Trail was designated by Congress in 1978. This 3,100-mile-long trail follows the Continental Divide and traverses nationally significant scenic terrain and areas rich in the heritage and life of the Rocky Mountain west. In entirety, the trail passes through portions of Montana, Idaho, Wyoming, Colorado, and New Mexico and is administered by the Forest Service in cooperation with the National Park Service, BLM, and Tribal, State, and local governments, and numerous partner groups. Management for the Continental Divide National Scenic Trail is outlined in the 2009 Continental Divide National Scenic Trail Comprehensive Management Plan.

Approximately 29 miles of the Continental Divide National Scenic Trail are located on the Custer Gallatin National Forest, all in the Madison, Gallatin, and Henrys Lake GA. The plan components outlined below apply 0.5 mile each side of the trail.

### Desired Conditions (MG-DC-CDNST)

- 01** The CDNST is a well-defined trail that provides for high-quality, primitive hiking and horseback riding opportunities, and other compatible non-motorized trail activities, in a highly scenic setting along the Continental Divide. The significant scenic, natural, historic and cultural resources along the trail's corridor are present. Where possible, the trail provides visitors with expansive views of the natural landscapes along the Divide.

- 02** Viewsheds from the CDNST have high scenic values. The foreground of the trail is naturally-appearing. The potential to view wildlife is high, and evidence of ecological processes such as fire, insects, and diseases exist. Trail maintenance may include vista clearing consistent with a scenic integrity objective of high.
- 03** The trail is accessible from access points that provide various opportunities to select the type of terrain, scenery and trail length, ranging from long-distance to day use, that best provide for the compatible outdoor recreation experiences being sought. Wild and remote, backcountry segments of the route provide opportunities for solitude, immersion in natural landscapes and primitive outdoor recreation. Front-country and more easily accessible trail segments complement local community interests and needs and help contribute to their sense of place.
- 04** Use conflicts amongst trail users are infrequent.
- 05** The trail is well maintained, signed, and passable. Alternate routes provide access to the trail in the case of temporary closures resulting from natural events, such as fire or flood, or land management activities.
- 06** Side trails to the CDNST enhance the experience along the main trail. Side trails are short trails that encompass adjacent attractions.
- 07** Trailhead facilities support the uses of the trail (e.g., stock use).

#### Standards (MG-STD-CDNST)

- 01** New motorized events shall not be permitted on the Continental Divide National Scenic Trail.
- 02** New overnight shelters, constructed and permanent, shall not be allowed.
- 03** New roads shall not be allowed.
- 04** New saleable mineral development shall not be allowed.

#### Guidelines (MG-GDL-CDNST)

- 01** To retain or promote the character for which the trail was designated, new or relocated trail segments should be located primarily within settings consistent with or complementing primitive or semi-primitive nonmotorized recreation opportunity spectrum classes. Road and motorized trail crossings and other signs of modern development should be avoided to the extent practicable.
- 02** To protect or enhance the scenic qualities of the Continental Divide National Scenic Trail, management activities should be consistent with, or make progress toward achieving scenic integrity objectives of high or very high within the foreground of the trail (up to 0.5 mile either side).
- 03** If forest health projects result in short-term impacts to the scenic integrity of the trail, mitigation measures should be included, such as screening, feathering, and other scenery management techniques to minimize visual impacts within and adjacent to the trail corridor (within visible foreground of the Continental Divide National Scenic Trail at a minimum).
- 04** In order to promote a nonmotorized setting, the Continental Divide National Scenic Trail should not be permanently relocated onto routes open to motor vehicle use.
- 05** The minimum trail facilities necessary to accommodate the amount and types of use anticipated on any given segment should be provided in order to protect resource values and for health and safety,



not for the purpose of promoting user comfort. The purpose is to preserve or promote a naturally appearing setting.

- 06** New linear utilities and rights-of-way should be limited to a single crossing of the trail unless additional crossings are documented as the only prudent and feasible alternative.
- 07** New oil and gas leasing on the CDNST should use non surface occupancy as a stipulation.
- 08** Using the Continental Divide National Scenic Trail for landings or as a temporary road for any purpose should not be allowed. The purpose is to provide for a naturally appearing setting and to avoid visual, aural, and resource impacts.
- 09** Hauling or skidding along the Continental Divide National Scenic Trail itself should be allowed only (1) where the Continental Divide National Scenic Trail is currently located on an open road or to address hazard tree removal, and/or (2) no other haul route or skid trail options are practicable. Design criteria should be used to minimize impacts to the trail infrastructure, and any necessary post-activity trail restoration should be a priority for the project's rehabilitation plan. The purpose is to provide for a naturally appearing setting and to minimize visual, aural, and resource impacts.
- 10** Unplanned fires in the foreground (up to 0.5 mile) of the Continental Divide National Scenic Trail should be managed using minimum impact suppression tactics or other tactics appropriate for the protection of Continental Divide National Scenic Trail values.

#### Suitability (MG-SUIT-CDNST)

- 03** The CDNST is not suitable for timber production. Timber harvest may be allowed for purposes such as fuels reduction, restoration or wildlife habitat enhancement.
- 04** The CDNST is suitable for summer motorized use only as necessary to meet emergencies, to provide for landowner access, or as allowed by administrative regulations at the time of designation, as long as such use does not substantially interfere with the nature and purpose of the trail. (National Trail System Act, Section 7c. Administrative trail maintenance equipment is authorized.)
- 05** Winter snowmobile use is suitable for the area over and around the CDNST.

### Plan Components—Nez Perce National Historic Trail (NPNHT)

#### Introduction

The Nez Perce National Historic Trail (NPNHT) Autotour Route passes through the Custer Gallatin National Forest. The Nez Perce Trail is interpreted along the Autotour Route, but the Autotour Route is not necessarily the physical location of the Nez Perce Trail. On the west end, the Autotour Route is along Highway 20, east from Targhee Pass to the west boundary of Yellowstone National Park. On the northeast side of Yellowstone National Park, the Autotour Route is along Highway 212, east to the Wyoming State line.

#### Desired Conditions (MG-DC-NPNHT)

- 01** Interpretive materials are available for all eight segments of the Nez Perce (Nee-Me-Poo) National Historic Trail.

#### Goals (MG-GO-NPNHT)

- 01** Management of the trail is coordinated with the other jurisdictions through which it passes.

## Plan Components—Earthquake Lake Geologic Area (ELGA)

### Introduction

The Earthquake Lake Visitor Center was constructed in 1967 after intense public interest that resulted from the 1959 earthquake, the landslide that dammed the Madison River and created Quake Lake. The center is operated through a partnership between the Forest Service and Yellowstone Forever.

### Desired Condition (MG-DC-ELGA)

- 01** The Earthquake Lake Visitor Center, natural attractions, and the easily-seen effects of the strongest earthquake in the Rocky Mountains provide unique geologic interpretive opportunities pertaining to the 1959 earthquake.
- 02** Earthquake Lake Visitor Center provides interpretation and education of the surrounding geologic area.

### Goals (MG-GO-ELGA)

- 01** The Forest Service and partners operate the visitor center complex to hosts exhibits, films, presentations and interpretive trails focused on earthquakes, plate tectonics, and a working seismograph.

## Plan Components—Municipal Watershed (WTR)

### Desired Conditions (MG-DC-WTR)

- 01** Whiskey Spring provides a clean water supply for the city of West Yellowstone.
- 02** Bozeman Creek and Hyalite Creek provide a clean water supply for the city of Bozeman.
- 03** Forest structure in the municipal watersheds does not support high intensity, stand-replacing fire and is resilient to forest insect and disease through maintenance of age, size class diversity, and species diversity.
- 04** The Hyalite Recreation Emphasis Area provides sustainable recreational opportunities and settings that respond to increasing recreation demand in concert with the demands on the municipal watershed.

### Goals (MG-GO-WTR)

- 01** The Forest Service cooperates with the city of Bozeman in sustainable land management of the Hyalite and Bozeman Creek municipal watersheds.

## Plan Components—Buffalo Horn Backcountry Area (BHBCA)

### Introduction

The Buffalo Horn Backcountry Area is generally rolling terrain, with conifer interspersed with open meadows. It offers a variety of both summer and winter motorized and non-motorized recreation opportunities in a backcountry setting.

### Desired Conditions (MG-DC-BHBCA)

- 01** Natural processes play their role and human use leaves little permanent or long-lasting evidence.

- 02** The area provides for less developed, semi-primitive recreation opportunities, both motorized and non-motorized in both summer and winter.

#### **Standards (MG-STD-BHBCA)**

- 01** New roads shall not be allowed.
- 02** New developed recreation sites shall not be allowed.
- 03** New energy or utility corridors shall not be allowed.
- 04** New commercial communication sites shall not be allowed.
- 05** New saleable mineral development shall not be allowed.
- 06** New special uses shall be compatible with management of the backcountry area character.
- 07** New access to and development of state or private minerals shall minimize impacts to the primitive areas subject to the outstanding rights of the mineral owners.

#### **Suitability (MG-SUIT-BHBCA)**

- 01** The backcountry area is not suitable for timber production.
- 02** The backcountry area is suitable for motorized and mechanized recreation.

## Chapter 4: Monitoring Plan

### Overview

Monitoring provides the feedback for the Forest planning cycle by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices. Monitoring information should enable the Forest to determine if a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management. Direction for the monitoring and evaluation of forest plans is found under the 2012 Planning Rule at 36 CFR 219.12 and in the directives at 1909.12 chapter 30.

The plan monitoring program addresses the most critical components for informed management of the Forest's resources within the financial and technical capability of the agency. Every monitoring question links to one or more desired conditions, objectives, standards, or guidelines. However, not every plan component has a corresponding monitoring question.

This monitoring program is not intended to depict all monitoring, inventorying, and data gathering activities undertaken on the Forest; nor is it intended to limit monitoring to just the questions and indicators listed in the table below. Consideration and coordination with broad-scale monitoring strategies, multi-party monitoring collaboration, and cooperation with state agencies where practicable will increase efficiencies and help track changing conditions beyond the Forest boundaries to improve the effectiveness of the plan monitoring program. In addition, project and activity monitoring may be used to gather information for the plan monitoring program if it will provide relevant information to inform adaptive management.

The monitoring program sets out the plan monitoring questions and associated indicators. It is comprised of a monitoring guide (to be developed) and a biennial monitoring evaluation report. The monitoring guide will provide detailed information on the monitoring questions, indicators, frequency and reliability, data sources and storage, and cost. An interdisciplinary team will develop a biennial monitoring evaluation report which will summarize the results of completed monitoring, evaluate the data, consider relevant information from broad-scale or other monitoring efforts, and make recommendations to the responsible official. The monitoring evaluation report will indicate whether or not a change to the Forest Plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report is used to inform adaptive management of the plan area. The monitoring evaluation report will be made available to the public.

Some kinds of monitoring indicators will require longer time frames for thorough evaluation of results, but a biennial review of what information has been collected will ensure timely evaluation to inform planning. The biennial monitoring evaluation does not need to evaluate all questions or indicators on a biennial basis, but must focus on new data and results that provide new information regarding management effectiveness; progress towards meeting desired conditions, objectives, and other plan components; changing conditions; or validation (or invalidation) of assumptions.

The following monitoring table is organized to display the plan components that drive the monitoring question(s) and the indicator(s) for answering the monitoring question. Monitoring questions are used to evaluate whether management is maintaining or moving toward or away from desired conditions. Indicators are the specific resource measures used in answering the monitoring questions. In general, the Forest Plan components listed is the primary direction being addressed by the monitoring question.

## Monitoring Table

The following monitoring table outlines key monitoring questions for select plan components and indicators. The final planning documents will have a more detailed monitoring guide.

Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
<b>Soils</b>	MON-SOIL-01: To what extent do vegetation management activity areas meet detrimental soil disturbance (DSD) standards.	FW-STD-SOIL-01, 02	IND-SOIL- Acres and percent of treatment unit areas of post-project detrimental soil disturbance	<ul style="list-style-type: none"> <li>Standardized post-project-level DSD monitoring</li> </ul>
<b>Watershed</b>	MON-WTR-01: To what extent are management actions occurring that improve or hinder spatial hydrologic connectivity for resilient aquatic ecosystems.	FW-DC-WTR-02 FW-OBJ-WTR-01	IND-WTR - <ul style="list-style-type: none"> <li>Acres or miles of restoration activities (AOPs installed, etc.)</li> <li>Number of constructed reservoirs, stream diversions, etc.</li> </ul>	<ul style="list-style-type: none"> <li>PIBO</li> <li>WCF ratings and progress</li> <li>Special uses databases</li> </ul>
<b>Aquatic Ecosystems</b>	MON-WTR-02: What is the condition of in-stream habitats and riparian areas?	FW-DC-WTR-03	IND-WTR- <ul style="list-style-type: none"> <li>Presence of woody plant regeneration</li> <li>In-stream attributes such as amount of wood in stream, pool/riffle ration, sinuosity</li> </ul>	<ul style="list-style-type: none"> <li>PIBO</li> <li>CGNF riparian monitoring program</li> </ul>
<b>Aquatic Ecosystems</b>	MON-WTR-03: What is the functional condition of riparian areas along stream channels?	FW-DC-RMZ-02	IND-WTR- <ul style="list-style-type: none"> <li>Percent of stream channels in proper functioning condition</li> </ul>	<ul style="list-style-type: none"> <li>Proper functioning condition protocols</li> <li>No formal systematic monitoring program</li> </ul>
<b>Aquatic Ecosystems</b>	MON-WTR-04: What is the status of native aquatic species, assemblages within the known range of native species?	FW-DC-WTR-03	IND-WTR- <ul style="list-style-type: none"> <li>Presence/absence of native aquatic species</li> <li>Distribution of native aquatic species: current versus historical</li> </ul>	<ul style="list-style-type: none"> <li>PIBO</li> <li>State databases such as MFISH, SDGFP, SD and MT Heritage</li> <li>RMRS aquatics catalog</li> </ul>
<b>Aquatic Ecosystems</b>	MON- WTR-05: Is the risk of aquatic invasive species altering ecosystem	FW-DC-INV-01	IND-WTR-	<ul style="list-style-type: none"> <li>PIBO</li> <li>State and/or Natural Heritage databases</li> </ul>

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
	integrity expanding or decreasing over time?		<ul style="list-style-type: none"> <li>■ Changes in aquatic invasive species presence/absence (number of PIBO plots with or without invasive species)</li> </ul>	
<b>Terrestrial Ecosystems Forested Vegetation</b>	MON-VEGF-01: To what extent is forested vegetation trending toward desired conditions for vegetation composition and structure?	FW-DC-VEGF-01, 02, 03, 04, 05, 08 FW-GDL-VEGF-01	IND-VEGF- <ul style="list-style-type: none"> <li>■ Proportion (percentage of total acres) Forestwide and by PVT for each of these indicators:               <ul style="list-style-type: none"> <li><i>Dominance type (i.e., cover type)</i></li> <li><i>Species presence</i></li> <li><i>Tree size class</i></li> <li><i>Tree canopy cover (By density class: 0–39%; 40–59%; &gt;60%)</i></li> <li><i>Old-growth forest; proportion of area</i></li> <li><i>Forestwide and by potential vegetation type</i></li> <li><i>Very large tree density, trees per acre</i></li> <li><i>Snag density, snags per acre; for &gt;15-inch d.b.h., inside/outside wilderness/roadless</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ FIA</li> <li>■ VMAP</li> </ul>
<b>Terrestrial Ecosystems: Aspen, Green Ash, Shrublands, Grasslands</b>	MON-VEGNF-01: To what extent are management activities and natural disturbance processes meeting or trending toward desired conditions for habitat types prone to conifer encroachment?	FW-DC-VEGNF-03	IND-VEGNF- <ul style="list-style-type: none"> <li>■ Acres of conifer presence or removal by management activities or natural disturbance processes for the following conifer encroachment prone community types:               <ul style="list-style-type: none"> <li><i>Acres of aspen</i></li> <li><i>Acres of green ash</i></li> <li><i>Acres of shrublands</i></li> <li><i>Acres of grasslands</i></li> <li><i>Changes in conifer presence in each of these habitat type groups</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ VMAP</li> <li>■ FACTS</li> <li>■ Aerial Map Comparison</li> <li>■ Project Reports</li> </ul>
<b>Terrestrial Ecosystems: At-risk Plants</b>	MON-PRISK-01: To what extent is forest management contributing to the desired conditions for	FW-DC-PRISK-01	IND-PRISK- <ul style="list-style-type: none"> <li>■ Acres treated for the purpose of sustaining or restoring whitebark pine</li> </ul>	<ul style="list-style-type: none"> <li>■ FACTS</li> <li>■ FIA</li> </ul>

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
<b>and Whitebark Pine</b>	maintaining and restoring whitebark pine?		<ul style="list-style-type: none"> <li>■ Acres live/dead trees</li> <li>■ Percent trees in GRYN plots with WPBR</li> </ul>	<ul style="list-style-type: none"> <li>■ GRYN</li> </ul>
<b>Terrestrial Ecosystems: At-risk Plant Habitats</b>	MON-PRISK-02: Is the extent of at-risk plant habitats being maintained or improved over time?	FW-DC-PRISK-01	IND-PRISK- <ul style="list-style-type: none"> <li>■ Cold forest (whitebark pine) acres</li> <li>■ Alpine (alpine mesic shrubland) acres</li> <li>■ Broadleaf woodland (green ash) acres</li> <li>■ Grasslands /shrublands acres</li> <li>■ Riparian/wetland acres</li> <li>■ Sparsely vegetated acres</li> </ul>	<ul style="list-style-type: none"> <li>■ FIA (extent of habitat type groups)</li> <li>■ FACTs</li> </ul>
<b>Terrestrial Ecosystems: At-risk Plant Habitats</b>	MON-PRISK-03: What are the trends in noxious weed species abundance and spread in susceptible known occurrences of at-risk plants?	FW-DC-PRISK-01	IND-PRISK- <ul style="list-style-type: none"> <li>■ Net infested acres in and near at-risk species known occurrences</li> </ul>	<ul style="list-style-type: none"> <li>■ CGNF TESP-IS database</li> <li>■ CGNF at-risk species GIS database</li> <li>■ MT/SD Natural Heritage Program databases</li> </ul>
<b>Terrestrial Ecosystems: At-risk Plant Habitats</b>	MON-PRISK-04: Have state conservation rankings changed for at-risk plant species or potential at risk plant species? Have threats changed for at risk plant species?	FW-DC-PRISK-01	IND-PRISK- <ul style="list-style-type: none"> <li>■ State Natural Heritage Program conservation ranking status</li> </ul>	<ul style="list-style-type: none"> <li>■ Montana/South Dakota Natural Heritage Program Databases</li> <li>■ New information about changes in threats</li> </ul>
<b>Terrestrial Ecosystems: Invasive Plants</b>	MON-INV-01: Is the risk of invasive species altering ecosystem integrity expanding or decreasing over time?	FW-DC-INV-01	IND-INV- <ul style="list-style-type: none"> <li>■ Changes in invasive species' presence/absence</li> </ul>	<ul style="list-style-type: none"> <li>■ CGNF Invasive Species GIS dataset</li> </ul>
<b>Terrestrial Ecosystems: Invasive Plants</b>	MON-INV-02: Have management activities met Plan objectives and trended towards desired conditions for invasive terrestrial plant species?	FW-DC-INV-01	IND-INV <ul style="list-style-type: none"> <li>■ Acres of non-native invasive plants treated</li> <li>■ Number of sites of new non-native invasive plant species and number of acres treated</li> <li>■ Efficacy percent</li> </ul>	<ul style="list-style-type: none"> <li>■ FACTs</li> </ul>
<b>Fire/Fuels</b>	MON- FIRE -01: Is the amount and severity of wildland fire within the natural range of variation?	FW-DC-VEGF-06	IND-VEGF-	<ul style="list-style-type: none"> <li>■ Burn severity (MTBS) database</li> </ul>

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
			■ Acres burned by wildfire (and large prescribed fire) and by severity class (low, moderate, high) and R1 Broad PVT	
<b>Fire/Fuels</b>	MON-FIRE-02: Are fuels treatments helping to protect high value resources and assets, and assisting with control and/or management of fires?	FW-DC-FIRE-02	IND-FIRE- ■ Fuel treatment effectiveness: <i>Acres prescribed fire and other fuel treatments to protect HVRAs</i> <i>Number of fuel treatments helping control or manage fire</i> <i>Number of fuel treatments that changed fire behavior</i> <i>Number of treatments strategically located to facilitate control and/or management of the fire</i>	■ FACTS ■ WFDSS ■ FTEM
<b>Fire/Fuels</b>	MON-FIRE-03: To what extent are fuels management activities occurring to meet the objective of 60,000 acres of treatment per decade?	FW-OBJ-FIRE-01	IND-FIRE- ■ Acres of prescribed fire ■ Acres of other fuels treatments (thinning, chipping, mastication, etc.)	■ FACTS
<b>Fire/Fuels</b>	MON-FIRE-04: To what extent are wildfires managed to meet resource desired conditions?	FW-DC-FIRE-01	IND-FIRE- ■ Number, acres, and percent of unplanned fire ignitions managed for the maintenance and/or restoration of fire-adapted ecosystems per year	■ WFDSS ■ FIRESTAT
<b>Focal Species</b>	MON-FOCAL SPECIES-01: Does terrestrial habitat provide for a consistent/stable diversity of native wildlife species?	FW-DC-WL-01, 02	IND-FOCAL SPECIES- ■ Land bird species/assemblage presence, habitat affiliation, and population trend at a forestwide scale	■ IMBCR
<b>Focal Species</b>	MON- FOCAL SPECIES-02: Is the ecological integrity of aquatic habitats being maintained at the	FW-DC-WTR-03, 05, 07	IND-FOCAL SPECIES-	■ PIBO ■ DEQ data



Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
	Forest scale for the montane ecosystem?		<ul style="list-style-type: none"> <li>Species assemblage presence, habitat type and quality indication, and population trend at a 12 digit HUC scale</li> </ul>	
<b>Wildlife: Canada Lynx</b>	MON-WLLX-01: To what extent have management actions and natural processes increased the amount of early successional stage forest in lynx habitat at the lynx analysis unit scale?	FW-DC-WLLX-01	IND-WLLX- <ul style="list-style-type: none"> <li>Acres of lynx habitat in a recently disturbed condition, such that it does not yet provide winter habitat for snowshoe hares</li> </ul>	<ul style="list-style-type: none"> <li>CGNF Lynx habitat mapping</li> <li>FACTS</li> </ul>
<b>Wildlife: Canada Lynx</b>	MON-WLLX-02: To what extent have fuel reduction projects in the WUI affected the amount of snowshoe hare habitat at the Forestwide scale?	FW-DC-WLLX-01	IND-WLLX- <ul style="list-style-type: none"> <li>Acres of fuel reduction treatment that decrease snowshoe hare habitat</li> </ul>	<ul style="list-style-type: none"> <li>CGNF I&amp;E review program</li> <li>CGNF lynx habitat mapping</li> </ul>
<b>Wildlife: Northern Long-eared Bat</b>	MON-WLNLB-01: Has white-nose syndrome been detected in bat populations within 50 miles of the Plan area?	FW-DC-WILD-04 FW-DC-WLNLB-01	IND-WLNLB- <ul style="list-style-type: none"> <li>White-nose syndrome detections in bat hibernacula</li> </ul>	<ul style="list-style-type: none"> <li>USFWS data</li> </ul>
<b>Wildlife: Northern Long-eared Bat</b>	MON-WLNLB-02: To what extent have vegetation management projects occurred in potential foraging and roosting habitat for northern long-eared bats?	FW-DC-WLNLB-01	IND-WLNLB- <ul style="list-style-type: none"> <li>Acres of timber harvest (live and salvage) in ponderosa pine forests of Ashland and Sioux Ranger Districts</li> </ul>	<ul style="list-style-type: none"> <li>FACTS</li> </ul>
<b>Wildlife: White-tailed Prairie Dog</b>	MON-WLPD-01: What is the size of State-mapped, occupied white-tailed prairie dog colony (or colonies) within the Plan area?	FW-DC-WLPD-01	IND-WLPD- <ul style="list-style-type: none"> <li>Acres of occupied white-tailed prairie dog colony(ies)</li> </ul>	<ul style="list-style-type: none"> <li>MTFWP monitoring data</li> </ul>
<b>Wildlife: Greater Sage-grouse</b>	MON-WLSG-01: What proportion of priority and general sage-grouse habitat in the Plan area are occupied by sage-grouse?	FW-DC-WLSG-01	IND-WLSG- <ul style="list-style-type: none"> <li>Acres of occupied leks, brood-rearing and/or winter habitat occupied by sage-grouse</li> </ul>	<ul style="list-style-type: none"> <li>State (MT &amp; SD) wildlife monitoring data</li> </ul>

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
<b>Wildlife: Bison</b>	MON-WLBI-01: Have bison expanded into previous unoccupied suitable habitat on national forest lands?	FW-DC-WLBI-01	IND-WLBI- ■ Numbers, location, and timing of bison use both within and outside of state tolerance zones	■ MTFWP monitoring ■ Forest Service employee reports
<b>Wildlife: Grizzly Bear</b>	MON-WLGB-01: To what extent are management actions changing grizzly bear habitat inside the primary conservation area, relative to the 1998 baseline?	FW-DC-WLGB-01	IND-WLGB- ■ By bear management subunit (inside the PCA): Percent secure habitat <i>Proportion of open motorized access route density (OMARD) above 1 mi/mi<sup>2</sup> and proportion of total motorized access route density (TMARD) above 2 mi/mi<sup>2</sup></i> <i>Number of new developed sites</i> <i>Increased capacity in existing developed sites</i> <i>Number and capacity of closed developed sites</i> <i>Number and acreage of active or vacant livestock allotments</i> <i>Number and acreage of closed allotments</i>	■ GYE Grizzly Bear Motorized Access database ■ NRM travel routes (system roads and trails) ■ GYE developed site database ■ GYE livestock allotment database ■ INFRA
<b>Wildlife: Grizzly Bear</b>	MON-WLGB-02: To what extent are management actions changing secure habitat and associated habitat connectivity outside the Primary Conservation Area?	FW-DC-WLGB-02	IND-WLGB- ■ Proportion and location of secure habitat by bear analysis unit outside the PCA	■ GYE Grizzly Bear Motorized Access database ■ NRM travel routes (system roads and trails) ■ Project files (temp roads)
<b>Wildlife: Grizzly Bear</b>	MON-WLGB-05: Have there been avoidable grizzly bear conflicts associated Forest management actions?	FW-DC-WLGB-03	IND-WLGB- ■ Number, type, date, location and cause of conflicts ■ Type of management action taken, if any	■ Reports from grazing permittees, Forest Service employees, Wildlife Services personnel, or MTFWPs
<b>Social, Economic, Cultural Sustainability</b>	MON-SUS-01: To what extent is the Forest providing goods and services for local communities?	FW-DC-SUS-02	IND-SUS- ■ Levels of production of multiple uses, including:	■ NVUM ■ INFRA ■ FACTS

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
			<i>Timber products</i> <i>Grazing (AUMs)</i> <i>Recreational visits</i> <i>Wilderness hunting and fishing opportunities</i> <i>Downhill skiing (as measured through day visits, night visits, local and non-local, animal unit months, thousand cubic feet of harvest and sales)</i>	<ul style="list-style-type: none"> <li>■ SUDS</li> <li>■ TIM</li> <li>■ NRM-Range</li> </ul>
<b>Social, Economic, Cultural Sustainability</b>	MON-SUS-02: To what extent is the Forest contributing to desired conditions for a stable and functioning local economy?	FW-DC-SUS-02	IND-SUS- <ul style="list-style-type: none"> <li>■ Contribution of jobs and thousands of dollars in labor income from Custer Gallatin National Forest management</li> <li>■ Land payment revenues (e.g., Secure Rural Schools Act, payment in lieu of taxes, etc.) to state and counties from NFS lands</li> </ul>	<ul style="list-style-type: none"> <li>■ PILT</li> <li>■ NVUM</li> <li>■ INFRA</li> <li>■ FACTS</li> <li>■ SUDS</li> </ul>
<b>Social, Economic, Cultural Sustainability</b>	MON-SUS-03: To what extent is the Forest contributing to social and economic sustainability? Are there changes in local demographics that may be influencing the type and size of demand for forest contributions? Are Forest benefits provided meeting new local demands?	FW-DC-SUS-01, 02	IND-SUS- <ul style="list-style-type: none"> <li>■ Qualitatively examine changes in demographics alongside changes in levels of goods and services provided to identify possible linkages</li> <li>■ Demographic indicators:               <ul style="list-style-type: none"> <li>% change in population size</li> <li>% change in poverty rate</li> <li>% change in unemployment rate</li> </ul> </li> <li>■ Good and services indicators:               <ul style="list-style-type: none"> <li>% change in visitors</li> <li>% change in special-use permits</li> <li>% change in timber outputs</li> <li>% change in grazing AUMs permitted</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ U.S. Census Bureau</li> <li>■ NVUM</li> <li>■ INFRA</li> <li>■ FACTS</li> <li>■ SUDS</li> <li>■ TIM</li> </ul>

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Topic	Monitoring Question <sup>1</sup>	Reference to Forest Plan Direction	Potential Indicator	Data Sources
<b>Cultural and Historic Resources</b>	MON-CR-01: To what extent have priority assets been managed to standard and have current conditions assessments?	FW-OBJ-CR-02	IND-CR- ■ Number of priority assets managed to standard annually ■ Number of priority assets not managed to standard annually	■ NRM Database
<b>Visitor/ Recreation</b>	MON-REC-01: What are the trends in visitation Forestwide?	FW-DC-REC-03	IND-REC- ■ Visitor number trends over time	■ NVUM
<b>Visitor/ Recreation</b>	MON-REC-02: Are visitors satisfied with Forest developed recreation sites and signage?	FW-DC-RECDEV-02, 06	IND-REC- ■ Visitor satisfaction as measured by NVUM	■ NVUM
<b>Visitor/ Recreation/ Roads and Trails</b>	MON-RT-01: What is the progress toward meeting objectives for road and trail maintenance?	FW-OBJ-RT-01, 02, 03	IND-RT- ■ Miles of road and trail maintenance	■ Forest accomplishment monitoring
<b>Scenery</b>	MON-SCENERY-01: What level of satisfaction do visitors express for scenery associated with CGNF developed recreation sites?	FW-DC-SCENERY-01	IND-SCENERY- ■ Visitor satisfaction as measured by NVUM	■ NVUM

<sup>1</sup> Acronyms used in this table:

**DEQ** Department of Environmental Quality (Montana)  
**FACTS** Forest Service Activity Tracking System  
**FIA** Forest Inventory and Analysis  
**FIRESTAT** Fire Statistics System  
**FTEM** Fuels Treatment Effectiveness Monitoring System  
**GIS** Geographic Information Systems  
**GRYN** Greater Yellowstone Inventory and Monitoring Program  
**GYE** Greater Yellowstone Ecosystem  
**I&E** Implementation and Effectiveness  
**IMBCR** Integrated Monitoring in Bird Conservation Regions  
**INFRA** Infrastructure  
**MT** Montana  
**MFISH** Montana Fisheries Information  
**MTFWP** Montana Fish, Wildlife and Parks  
**MTBS** Monitoring Trends in Burn Severity

**NRM** Natural Resource Manager  
**NVUM** National Visitor Use Monitoring  
**PIBO** PACFISH, INFISH Biological Opinion  
**PILT** Payment in Lieu of Taxes  
**RMRS** Rocky Mountain Research Station  
**SD** South Dakota  
**SDGFP** South Dakota Game Fish and Parks  
**SUDS** Special Uses Data System  
**TESP/IS** Threatened, Endangered, and Sensitive Plants, and Invasive Species  
**TIM** Timber Information Manager  
**USFWS** US Fish and Wildlife Service  
**VMAP** Vegetation Mapping Program  
**WCF** Watershed Condition Framework  
**WFDSS** Wildland Fire Decision Support System

## Glossary

The glossary defines terms used throughout the document. If a term's definition(s) is associated with a particular species, management direction, or originates from a specific source, the source is cited or applicable direction is referenced with the following bracketed abbreviations:

- [CFR] Code of Federal Regulations
- [FSM] Forest Service Manual
- [FSH] Forest Service Handbook
- [GBCS] Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem (U.S. Fish and Wildlife Service 2016).
- [NRLMD] Northern Rockies Lynx Management Direction 2007
- [LCAS] Lynx Conservation and Assessment Strategy 2013

**activity area** A land area affected by a management activity to which soil quality standards are applied. An activity area must be feasible to monitor and includes harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within range allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are considered to be part of an activity area.

**activity caused soil disturbance** Soil disturbance created by management activities such as: timber harvesting, temporary road construction, slash pile burning, livestock grazing, and/or recreational use of Forest Service lands.

**adaptive management** The general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 Code of Federal Regulations 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

**administrative site** A location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on National Forest System lands include, but are not limited to, ranger stations, warehouses, and guard stations. [GBCS]

**aircraft** A device that is used or intended to be used for flight in the air. Motorized aircraft include types of aircraft including: Airplane, an engine-driven fixed-wing aircraft heavier than air, that is supported in flight by the dynamic reaction of the air against its wings; helicopter, a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors; rotorcraft, a heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors (14 CFR 1.1).

**air quality related value (AQRV)** Is any resource that is identified as sensitive to air pollution including vegetation, soils, water, fish, cultural resources, wildlife, visibility, etc., and can be used to provide information about the air quality within the landscapes where they exist.

**airshed** Is typically a geographic area where the air is subject to similar conditions of air pollution. Under the Clean Air Act amendments, all national parks larger than 6,000 acres, national wilderness areas larger than 5,000 acres which existed before August 7, 1977, and certain designated Tribal areas are considered class I airsheds and are provided the most protection through limitation of additional air pollution.

**all American road** Designated by the Department of Transportation, the most scenic byways are designated all-American roads, which must meet two out of the six intrinsic qualities. The designation means they have features that do not exist elsewhere in the United States and are unique and important enough to be tourist destinations unto themselves.

**allotment** Is a designated area of land available for permitted livestock grazing (36 CFR 222). A grazing allotment can include National Forest System and non-National Forest System lands. Permits are issued for the use of allotments or portions of allotments. Allotments are in active status when grazing permits have been issued; allotments are in vacant status when they do not have a grazing permit issued; and allotments are in closed status when they have been closed to livestock grazing by administrative decision or action (FSM 2205).

**allotment management plan** Is a document that specifies the program of action designated to reach a given set of objectives. It is prepared in consultation with the permittee(s) involved; prescribes the manner in and extent to which livestock operations will be conducted in order to meet the multiple-use, sustained yield, economic, and other needs and objectives as determined for the lands, involved; describes the type, location, ownership, and general specifications for the range improvements in place or to be installed and maintained on the lands to meet the livestock grazing and other objectives of land management; and contains such other provisions relating to livestock grazing and other objectives as may be prescribed by the Chief, Forest Service, consistent with applicable law (36 CFR 222).

**animal unit month** Is the amount of dry forage required by one mature cow of approximately 1,000 pounds or its equivalent, for 1 month, based on a forage allowance of 26 pounds per day. Not synonymous with animal month.

**appropriate management level** Means the maximum number of wild horses, excluding the current years foal crop, that can be maintained within an area without causing deterioration of rangeland resources.

**aquatic natural range of variation** The expected range of variation for a condition or process as described by monitoring that condition or processes in a similar biophysical setting in relatively unmanaged landscape.

**At-risk species** Are federally recognized threatened, endangered, proposed, and candidate species and species of conservation concern that are relevant to the plan area and planning process (36 CFR 219.6(b)).

**bare ground** All land surface not covered by vegetation, rock or litter.

**barrier** A physical obstruction which precludes the movement of animals.

**baseline** Levels for grizzly bears reflect the environmental conditions (e.g., secure habitat, developed sites, and permitted livestock grazing allotments) at a specific point in time within the primary conservation area. The baseline is the year 1998 for most bear management subunits. Subunits identified in the 2003 GBCS as in need of improvement for secure habitat include Gallatin #3, Madison

#2, and Henry's Lake #2. These subunits adopt a new baseline for secure habitat of the level achieved through full implementation of the Gallatin Forest Travel Management Plan (2007).

**bear-human conflict** An interaction between a bear and human in which bears either do, or attempt to, injure people, or in which humans may or may not be present, but bears damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods or attractants or agricultural crops.

**best management practice** The method(s), measure(s), or practice(s) selected by an agency to meet its nonpoint source control needs. Best management practices include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Best management practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 Code of Federal Regulations 219.19) or into the air. Best management practices is a term also used in other resource areas to describe methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing impacts from grazing, invasive weed establishment and spread, etc.) while making use of the resources.

**best available control technology** An emission limitation based on the maximum degree of reduction of each pollutant subject to regulation (under the Clean Air Act) emitted from or which results from any major emitting facility (169(3))

**biodiversity** The variety and abundance of plants, animals, and other living organisms and the ecosystem processes, functions, and structures that sustain them. Biodiversity includes the relative complexity of species and communities across the landscape at a variety of scales, connected in a way that provides for the genetic diversity to sustain species over the long term.

**biophysical settings** A grouping of potential vegetation types based on broad climatic and site conditions, such as temperature and moisture gradients. Also see "potential vegetation types."

**boreal forest (lynx)** A forest type with which lynx and snowshoe hares are strongly associated. The predominant vegetation of boreal forest is conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.). At the landscape scale within each region, natural and human-caused disturbance processes (for example, fire, wind, insect infestations and forest management) influence the spatial and temporal distribution of lynx populations by affecting the distribution of good habitat for snowshoe hares (U.S. Fish and Wildlife Service Critical Habitat Final Rule 2009).

**broadcast burn** A management treatment where a prescribed fire is allowed to burn over a designated area within well-defined boundaries. A broadcast burn is used for reduction of fuel hazard, as a resource management treatment, or both.

**candidate species** A status for (1) U.S. Fish and Wildlife Service candidate species, a species for which the U.S. Fish and Wildlife Service possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the U.S. Fish and Wildlife Service; for (2) National Marine Fisheries Service candidate species, a species that is: (i) the subject of a petition to list and for which the National Marine Fisheries Service has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 United States Code (U.S.C.) 1533(b)(3)(A)), or (ii) not the subject of a petition but for which the National Marine Fisheries Service has announced in the *Federal Register* the initiation of a status review.

**capability and potential** Potential is the highest ecological status an area can attain given no political, social, or economical constraints. Capability is the highest ecological status an area can attain given

political, social, or economical constraints. These constraints are often referred to as limiting factors. The capability of an area of land and/or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions (climate, slope, landform, soils, and geology), as well as the application of management practices (i.e. silviculture systems, protection from fires, insects, and disease).

**CERCLA site** A location, managed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund) 42 U.S.C. §9601 et seq. (1980) in order to clean up or prevent a release of hazardous materials into the environment.

**commercial use/activity** A use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 Code of Federal Regulations 251.51).

**composition** The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

**connectivity** The ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 Code of Federal Regulations 219.19). Connectivity needs vary by species. For example, Yellowstone cutthroat trout are able to move upstream to spawn as long as there is not a barrier to connectivity, such as a dam.

**conservation** The protection, preservation, management, or restoration of natural environments, ecological communities, and species.

**control** With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), control is defined as any activity or action taken to reduce the population, contain, limit the spread, or reduce the effects of an invasive species. Control activities are generally directed at established free-living infestations, and may not necessarily be intended to eradicate the targeted infestation in all cases.

**cool season grass** Cool season grasses (i.e., various wheatgrass, needlegrass, brome grass, bluegrass species) start their growth early in spring and continue that growth while cool temperatures and rain prevails. They grow best when temperatures are 40 to 75 °F. They do not grow well during the hot periods in midsummer and often become semi-dormant. They may grow again in the fall as temperatures cool and late summer precipitation replenishes soil moisture. Thus, there may be two growing periods for these grasses: early spring and late summer or fall. Cool season species generally exhibit the C3 photosynthetic pathway; also known as a C3 plant.

**coarse woody debris** Woody material derived from tree limbs, boles and roots in various stages of decay that is larger than three inches in diameter.

**cover** The elements of the environment used by an animal for hiding. Cover varies depending upon the species or the time of year and may include a variety of vegetation types as well as topography. The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas.

**cover type** The existing vegetation of an area described by the dominant plant species. Also see "forest type."



**critical habitat** (For a threatened or endangered species) (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 United States Code 1533), on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the species. Endangered Species Act, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce. Endangered Species Act, sec. 4 (a)(3) and (b)(2) (16 United States Code 1533 (a)(3) and (b)(2)).

**critical load** Is the level of atmospheric deposition below which significant harmful effects on specified sensitive elements of the environment are not expected to occur. Atmospheric deposition is the process by which particles, aerosols, dust, and gases move from the atmosphere to the earth's surface via rain, snow, fog, or dry deposition.

**culmination of mean annual increment of growth** See mean annual increment of growth.

**culturally significant area** Areas that have spiritual, historic, scientific or social value for past, present or future generations including the significance of the natural elements of land, water and vegetation.

**culturally significant species** Plant and animal species whose existence and symbolic value are essential to the stability of a cultural group through time. Sweet grass and buffalo are examples for Northern Plains Tribes.

**dams (jurisdictional)** Refer only to jurisdictional dams as defined in the FSH 7506. Jurisdictional dam is defined by statutes and rules as Forest Service operated dams and dams operated by the holder of a special use authorization that meet one or more of the following criteria:

1. Dams with a high hazard potential classification;
2. Dams with a significant hazard potential classification; and
3. Dams with a low or undetermined hazard potential classification that:
  - a. Equal or exceed 25 feet in height and exceed 15 acre-feet in storage, or
  - b. Exceed 6 feet in height and equal or exceed 50 acre-feet in storage.

**deciduous (plant)** Plant parts, particularly leaves, that are shed at regular intervals, or at a given stage of development, i.e., a deciduous plant regularly loses or sheds its leaves.

**decision document** A record of decision, decision notice, or decision memo (36 Code of Federal Regulations 220.3).

**designated area** An area or feature identified and managed to maintain its unique special character or purpose; some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the Federal executive branch; examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas; examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves (36 Code of Federal Regulations 219.19).

**desired condition** A description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Also see chapter 1.

**detrimental soil compaction** A specific type of detrimental soil disturbance most often caused by the use of ground based mechanical equipment where soil grains are rearranged so they are brought in closer contact with one another thereby reducing the volume of pore space and average pore size in the soil thereby increasing soil bulk density. Effects are severe enough to reduce soil productivity over an extended period of time.

**detrimental soil disturbance** Management-caused soil disturbance in vegetation management areas that persists on the landscape for an extended period of time (minimum of 40 years) unless restoration actions are taken and is severe and extensive enough to reduce soil productivity and/or the ability of the land to provide desired goods and services.

**detrimental soil displacement** A specific type of detrimental soil disturbance most often caused by mechanical removal of surface soil layers associated with land grading, temporary road construction, or land scarification. The physical removal of upper soil layers.

**desired nonnative species:** Rainbow trout, ditch parrots, etc.

**developed recreation site** A recreation site that has a development scale of 3, 4, or 5 (FSM 2330.5–Definitions).

**diameter breast height** The diameter of a tree measured 4.5-feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5-feet from the large end of the log.

**dispersed camping** The practice of camping outside of a developed campground, including designated dispersed camping, dispersed vehicular camping, or back-country camping.

**dispersed recreation** General term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, climbing, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

**disturbance** An event that alters the structure, composition, or function of terrestrial or aquatic habitats; any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens; human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species (36 Code of Federal Regulations 219.19).

**disturbance activities** Are activities which result in notable vegetation removal, soil disturbance, and/or altered behavior of wildlife. Examples include, but are not limited to road construction and timber harvest.

**disturbance regime** A description of the characteristic types of disturbance on a given landscape; the frequency, severity, size, and distribution of these characteristic disturbance types, and their interactions. The natural pattern of periodic disturbances, such as fire or flooding (36 Code of Federal Regulations 219.19).

**driver (ecology)** See “ecosystem driver.”

**early detection** The process of finding, identifying, and quantifying new, small, or previously unknown infestations of aquatic or terrestrial invasive species prior to (or in the initial stages of) its establishment as free-living expanding population. Early detection of an invasive species is typically coupled with integrated activities to rapidly assess and respond with quick and immediate actions to eradicate, control, or contain it.

**ecological condition** The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems; ecological conditions include habitat and other influences on species and the environment; examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species (36 Code of Federal Regulations 219.19).

**ecological diversity** See “ecosystem diversity.”

**ecological integrity** The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 Code of Federal Regulations 219.19).

**ecological site** Is a conceptual division of the landscape that is defined as a distinctive kind of land based on recurring soil, landform, geological, and climate characteristics that differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its ability to respond similarly to management actions and natural disturbances (interagency definition).

**ecological site descriptions (ESDs)** Are standard reference for natural resource information for all Federal agencies and other interested groups/organizations. ESDs are tools to assess lands for potential values or resource specific concerns, along with information on wildlife habitat, carbon pools, vulnerability to loss or degradation, and site restoration potential. ESDs include the known rangeland plant community types that may occur on a site as well as the single climax plant community. Ecological site descriptions should relate degree of soil development, hydrologic and ecosystem functions, and other ecological knowledge to the known plant communities. The ecological site description also outlines the processes of change that may occur on a site as well as showing change as a deviation from the climax or natural plant community.

**ecological threshold** See threshold

**ecological sustainability** See sustainability

**ecosystem** (36 Code of Federal Regulations 219.19) A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. The term ecosystem can be used at a variety of scales; for the Forest Plan, the ecosystem is referred to spatially at the Forestwide and geographic area scales as well as within potential vegetation types. An ecosystem is commonly described in terms of its:

- *composition*: The biological elements within the different levels of biological organization, from genes and individual plant and animal species to communities (such as cover types).
- *structure*: The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical (size class and structure class) and horizontal (density) distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity.

- *function*: Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.
- *connectivity*: See connectivity.

**ecosystem diversity** The variety and relative extent of ecosystems (36 Code of Federal Regulations 219.19).

**ecosystem driver** A natural or human-induced factor that directly or indirectly causes a change in an ecosystem. Examples include climate change, fire events, invasive species and flooding.

**ecosystem resilience** See “resilience.”

**ecosystem services** The benefit(s) people obtain from an ecosystem, including: (1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities (36 Code of Federal Regulations 219.19).

**ecosystem stressor** See stressors.

**ecotone** Ecotones exist where there is a gradual blending of the two ecosystems across a broad area or they may be manifested as a sharp boundary line. Without periodic disturbance processes such as fire, plants in competition extend themselves on one side of the ecotone as far as their ability to maintain themselves allows. Beyond this competitors of the adjacent community can take over. As a result, the ecotone can represent a shift in dominance. This zone shifts in location and condition based on climate influences, successional processes, and disturbance processes. Examples include transition zones in riparian areas between terrestrial and aquatic ecosystems or between nonforested grass/shrub communities and forested communities.

**eligible river** Within the Wild and Scenic River act, eligibility is an evaluation of whether a candidate river is free-flowing and possesses one or more outstandingly remarkable values (ORVs). If found eligible, a candidate river is analyzed as to its current level of development (water resources projects, shoreline development, and accessibility) and a tentative classification is made that it be placed into one or more of three classes—wild, scenic or recreational. Eligibility and classification represent an inventory of existing conditions.

**endangered species** A species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Endangered species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 224.101.

**environmental document** A written analysis that provides sufficient information for a responsible official to undertake an environmental review. Examples include: a categorical exclusion, an environmental assessment, and an environmental impact statement (36 Code of Federal Regulations 219.19).

**environmental justice community** A community with a meaningfully greater minority or low-income population, compared to the population as a whole. For the purposes of the Custer Gallatin plan,

environmental justice communities are defined as those communities where either low-income or minority populations (or both) comprise at least 20 percent of the total community population.

**ephemeral streams:** A channel or draw reach that only carries surface flow in direct response to precipitation. An ephemeral channel may or may not have a defined bed and banks, depending on the physiographic setting, climate, and dominant weather patterns.

**eradication** With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), eradication is defined as the removal or elimination of the last remaining individual invasive species in the target infestation on a given site. It is determined to be complete when the target species is absent from the site for a continuous time period (that is, several years after the last individual was observed). Eradication of an infestation of invasive species is relative to the time-frame provided for the treatment procedures. Considering the need for multiple treatments over time, certain populations can be eradicated using proper integrated management techniques.

**fire control** See “fire suppression.”

**fire exclusion** The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

**fire frequency** The number of times that fires occur within a defined area and time period.

**fire intensity** The amount of energy released by a fire, however no single metric (including reaction intensity, fireline intensity, temperature, residence time, radiant energy and others) captures all of the relevant aspects of fire energy. Fireline intensity is most frequently used in forested ecosystems (Keeley 2009).

**fire regime** A general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of prehistoric human burning (Agee 1993; Brown 1995; Hann and Bunnell 2001). The five natural fire regimes are classified based on the average number of years between fires combined with the severity of the fire (the amount of vegetation replacement), and its effect on the dominant overstory vegetation (Hann 2005). The five natural fire regimes on the Custer Gallatin National Forest are as follows:

Fire Regime Group	Frequency (Fire Return Interval)	Severity	Representative Vegetation Types/Habitats
I	0 to 35 years	Nonlethal, low intensity to mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Ponderosa pine, dry-site Douglas-fir Open forest, woodland, shrub and savanna structures maintained by frequent non-lethal fire; also includes mixed severity forest that create a mosaic of different age classes, post-fire open forests; mean fire return interval can be greater than 35 years in systems with high temporal variation.
II	0 to 35 years	Stand-replacing (greater than 75 percent of the dominant overstory vegetation replaced)	Drier grasslands; cool-site sagebrush (such as mountain big sagebrush) Shrub or grasslands maintained or cycled by frequent fire; fire typically remove non-sprouting shrubs, tops of sprouting shrubs and most tree regeneration.
III	35 to 100+ years	Nonlethal and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Interior dry-site shrub communities (such as warm-site sagebrush-Wyoming big sagebrush, basin big sagebrush); moist-site Douglas-fir/lodgepole pine forests Mosaic of different age post fire open forest, early to mid-seral forest structure stages, and shrub and herb dominated patches, maintained by infrequent fire events.
IV	35 to 100+ years	Stand-replacing, high intensity (greater than 75 percent of the dominant overstory vegetation replaced)	Lodgepole pine Large patches of similar age, post-fire structures; early to mid-seral forests cycled by infrequent fire events.
V	200+ years	Generally stand-replacing, high intensity. Can include nonlethal and mixed severity	Boreal forest and high elevation conifer forest; lodgepole pine/subalpine fir; subalpine fir; whitebark pine Variable size patches of shrub and herb dominated structures, or early- to mid- to late-seral forest depending on the type of biophysical environment. Cycled by rare fire or other disturbance events. Often have complex structures influenced by small gap disturbances and understory regeneration.

**fire risk** The probability or chance of fire starting determined by the presence and activities of causative agents.

**fire severity** Describes the immediate effects of fire on vegetation, litter, or soils. Fire severity depends not only on the amount of heat generated by a fire (intensity) but also on the duration and residence time of the fire. While a fast-moving, wind-driven fire may be intense, a long-lasting fire that just creeps along in the forest underbrush could transfer more total heat to plant tissue or soil. In this way, a slow-moving, low intensity fire could have much more severe and complex effects on something like forest soil than a faster-moving, higher-intensity fire in the same vegetation. For this reason, the terms fire intensity and fire severity are not synonymous or interchangeable.

**fire suppression** The work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

**fire-adapted species** A plant or animal that has evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver, including tree species that are termed fire-tolerant as well as

other plant and animal species that have a myriad of other types of adaptations. Some examples of adaptations are the serotinous cones of lodgepole pine, which open only when heated in a fire; rhizomatous (below ground) root systems, which are protected from heat and flame, and color adaptations such as the black-backed woodpecker, which is well-camouflaged against the burned trunk of a tree.

**fireline intensity** The rate of energy release per unit length of the fire front expressed as BTU per foot of fireline per second or as kilowatts per meter of fireline (Paysen et al. 2000). This is a physical parameter that is related to flame length. This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high (Carey and Schumann 2003).

**flame length** The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity. [NWCG]

**floodplain** Lowlands bordering a streams which are subject to recurrent flooding. Floodplains are composed of sediments carried by streams and deposited on land during flooding.

**flow regime:** The temporal patterns of high and low flows in a stream or river. The flow regime is key driver in the geomorphic process that shape river channels, floodplains; can influences shallow water aquifers (i.e., hyporheic zone) that return flow to surface waters; and helps shape ecological processes influencing biodiversity of aquatic and riparian organisms.

**focal species** A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 Code of Federal Regulations 219.19).

**forage** Non-woody plants available to livestock or wildlife for feed.

**foraging habitat** For Canada lynx includes areas that support the primary prey (snowshoe hare) of lynx and has the vegetation structure suitable for lynx to capture prey. These conditions may occur in early successional stands following some type of disturbance, or in older forests with a substantial understory of shrubs and young conifer trees. Coarse woody debris, especially in early successional stages (created by harvest regeneration units and large fires), provides important cover for snowshoe hares and other prey. [LCAS]

**forb** A herbaceous (herb-like) plant, other than grass or grass-like plants.

**forest land** An area at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest uses. Lands developed for nonforest use include areas for crops, improved pasture, residential or administrative sites, improved roads of any width and adjoining road clearing, and power line clearings of any width (36 Code of Federal Regulations 219.19).

**forest plan** A document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 Code of Federal Regulations 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531), the Forest Service manages National Forest System lands to sustain the multiple use of its renewable resources in perpetuity while maintaining the long-term health and productivity of the land.

**free-flowing river** From the Wild and Scenic River Act, as applied to any river or section of a river means existing or flowing in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the [National System] shall not automatically bar its consideration for such inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the [National System].

**fuels management** An act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological or manual means, or by fire, in support of land management objectives. [NWCG]

**fuels treatment** The manipulation or removal of dead or live plant materials to reduce the likelihood of ignition and/or lessen potential damage and resistance to fire control (example treatments include, logging, chipping, crushing, piling and burning). [NWCG]

**function** Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.

**functioning at risk** Are wetland or riparian conditions that are in limited functioning condition; however, existing hydrologic, vegetative, or geomorphic attributes make them susceptible to degradation.

**geographic area (GA)** A spatially contiguous land area identified within the plan area. A geographic area may overlap with a management area (36 Code of Federal Regulations 219.19).

**geographic information system (GIS)** A computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

**goals (GO)** Broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Also see chapter 1.

**gradient (stream)** The slope of a streambed.

**grazing authorizations and reauthorizations** Grazing permits with term status of 10 years or with temporary status of 1 year. Upon expiration of an existing grazing permit, they can be reauthorized provided eligibility and qualification requirements are met. Upon sale of base property or permitted livestock, a grazing permit with term status may be authorized to the purchaser of base property or permitted livestock as the preferred applicant, provided eligibility and qualifications requirements are met.

**grazing permit** Authorizes livestock to use National Forest System or other lands under Forest Service control for the purpose of livestock production. Term permits are issued for up to 10 years with priority for renewal at the end of the term. On-and-off grazing permits are permits with specific provisions on range only part of which is National Forest System lands or other lands under Forest Service control. Private land grazing permits are permits issued to persons who control grazing lands adjacent to or within National Forest proclaimed boundary and who waive exclusive grazing use of these lands to the United States for the full period the permit is to be issued (36 CFR 222). Temporary permits are issued for up to 1 year. Examples include livestock use permits for transportation livestock to persons engaged in commercial packing or dude ranching.



**greater sage-grouse general habitat** Includes habitat outside of priority sage grouse habitat (see definition below) that may be essential for summer brood rearing needs, wintering areas, and/or providing habitat connectivity between priority habitats.

**greater sage-grouse priority habitat** (also referred to as core habitat) Includes key habitats identified by state sage-grouse conservation plans or other sage-grouse conservation efforts as those areas of greatest biological importance for maintaining sage-grouse representation, redundancy and resilience across the landscape. Priority habitats are typically identified as those areas surrounding locations with the largest number of displaying male sage grouse on leks (i.e., breeding grounds).

**greater Yellowstone area (GYA)** Generally high elevation mountainous public and private lands in northwestern Wyoming, southwestern Montana, and eastern Idaho surrounding Yellowstone National Park.

**greater Yellowstone ecosystem (GYE)** See greater Yellowstone area (GYA).

**green ash draws** Also locally known as woody draws, these are draws with an overstory of woody vegetation, predominantly of green ash, and an understory of grass, forbs, or shrubs. The green ash draw must generally be approximately 500-feet long for purposes of application of plan components. These ecosystems are found on the Sioux and Ashland Ranger Districts and provide important habitat for many wildlife species, game and non-game, as well as an important component (shelter and forage) for livestock grazing. The vegetation is a result of higher moisture conditions than in the surrounding area but surface water if any, running through the area is generally short term.

**greenline** The first line of perennial vegetation on or near the water's edge along a stream. The greenline is an important location for monitoring riparian areas because it is vulnerable to impacts from management that are related to streambank instability and channel widening and/or incision.

**Grizzly Bear Conservation Strategy (GBCS)** A document compiled by the U.S. Fish and Wildlife Service that describes the regulatory framework for management of the Greater Yellowstone Ecosystem grizzly bear population and its habitat (U.S. Fish and Wildlife Service 2016).

**ground-disturbing activity** Is an activity that results in a change in the vegetation cover or topography and that may cause or contribute to sedimentation. Ground-disturbing activities include, but are not limited to, removing vegetation cover, excavating, filling, and grading.

**groundwater-dependent ecosystem** A community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include many wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, fens, springs, and seeps.

**guideline (GDL)** A constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Also see chapter 1.

**habitat type** An aggregation of plant communities of similar biophysical characteristics, and similar function and response to disturbances. A habitat type will produce similar plant communities at climax. On the Custer Gallatin National Forest, habitat types are based on classifications such as Pfister et al. (1977); Mueggler and Stewart (1980); Hansen and Hoffman (1988); and Hansen et al. (1995). Also see "potential vegetation type."

**hazardous fuels mitigation** See fuels management and fuels treatment

**high landslide potential** An area of land having a high potential for large and/or rapid landslides or flows to occur. Projecting the likelihood of such events is most often based on evidence of past land instability or mass failure events associated unstable geologic stratigraphy. In this instance, the term “landslide” is being used broadly sense to cover range of different of mass failure events.

**high mass failure potential** See “high landslide potential.”

**high severity fire/high severity fire regime** See “stand-replacing fire.”

**high use areas** Areas that receive high levels of visitor use such as trailheads, developed campgrounds, etc.

**highly erodible soils** Soils that are inherently susceptible to soil erosion ( water or wind) due to physical properties of surface soil layers, such as soil texture or the amount of rock fragments in the soil and/or topographic factors such as steep slopes.

**historic properties** 36 CFR 800.16 defines historic properties as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or native Hawaiian organization and that meet the National Register criteria.”

**hydric** Environment or habitat containing plenty of moisture, very wet.

**hydric vegetation** See “hydrophilic vegetation.”

**hydrophilic vegetation** Is plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Hydrophilic vegetation can be described as obligate wetland or facultative wetland species. Obligate wetland species are nearly always found in wetlands; its frequency of occurrence in wetlands is 99 percent or more. Facultative wetland species occurs more often than not in wetlands; its frequency of occurrence in wetlands is between 67 and 99 percent of the time (Lichvar et al. 2012; Reed 1988).

**independent identically distributed (IID)** The underlying assumption made of the sample population for statistical inference using a completely random sampling design.

**Indian Tribe.** Any Indian or Alaska Native Tribe, band, nation, pueblo, village, or other community that is included on a list published by the Secretary of the Interior under section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a-1).

**inherent capability of the plan area** The ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances (36 Code of Federal Regulations 219.19).

**inherent (soil) productivity** The ability of the soil to produce a specific type and amount of native vegetation based on physical and chemical properties inherited from the unique combination of soil forming factors and processes that have occurred at a site and without the addition of soil amendments.

**inner** Gorge a geomorphic feature that consists of the steep side slope (typically greater than 35 percent) immediately adjacent to the stream channel, below the first break in slope above the stream channel, and above which the hillslope/topography is less steep. Debris sliding and avalanching are often associated with the inner gorge.

**integrated pest management (IPM)** Is a pest (in this context, an invasive species) control strategy based on the determination of an economic, human health, or environmental threshold that indicates when a pest population is approaching the level at which control measures are necessary to prevent a decline in the desired conditions (economic or environmental factors). In principle, IPM is an ecologically-based holistic strategy that relies on natural mortality factors, such as natural enemies, weather, and environmental management, and seeks control tactics that disrupt these factors as little as possible. Integrated pest management techniques are defined within four broad categories: (1) biological, (2) cultural, (3) mechanical/physical, and (4) chemical techniques. While each situation is different, the following major components are common to all IPM programs: prevention, early detection/rapid response, control and management, restoration, and collaboration.

**integrated resource management** Multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors (36 Code of Federal Regulations 219.19).

**integrity (ecology)** See “ecological integrity.”

**intermittent stream** Any non-permanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This may include ephemeral streams if they meet these two physical criteria. Intermittent streamflow can be the result of a discontinuous supply from springs or ground-water seepage, a discontinuous supply from surface sources, including runoff of rainfall and seasonal snowmelt, or both. Fish-bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams or travel routes for fish emigrating from lakes or as semi-permanent habitat in perennial pools of intermittent streams in the pine savanna region.

**invasive species** An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

**invasive species treatment** Any activity or action taken to directly prevent, control, or eradicate a targeted invasive species. Treatment of an invasive species infestation may not necessarily result in the elimination of the infestation, and multiple treatments on the same site or population are sometimes required to affect a change in the status of the infestation. Treatment activities typically fall within any of the four general categories of integrated management techniques: biological treatments, cultural treatments, mechanical treatments, or chemical treatments. For example, the use of domestic goats to control invasive plants would be considered a biological treatment; the use of a pesticide to control invasive fishes would be characterized as a chemical treatment; planting of native seeds used to prevent invasive species infestations and restore a degraded site would be considered a cultural treatment technique; developing an aquatic species barrier to prevent invasive species from spreading throughout a watershed would be considered a physical treatment; cleaning, scraping, or otherwise removing invasive species attached to equipment, structures, or vehicles would be considered a mechanical treatment designed to directly control and prevent the spread of those species.

**key ecosystem characteristic** The dominant ecological characteristic(s) that describes the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about a land management plan. Key ecosystem characteristics are

important to establishing or evaluating plan components that would support ecological conditions to maintain or restore the ecological integrity of ecosystems in the plan area.

**land management plan** See “forest plan.”

**landscape** A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 Code of Federal Regulations 219.19).

**landtype** A unit shown on an inventory map with relatively uniform potential for a defined set of land uses. Properties of soils landform, natural vegetation, and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

**linkage areas** Support seasonal, exploratory, or dispersal movements of animals beyond the home range to facilitate demographic and genetic connectivity between geographically separate patches of habitat; key linkage areas are typically located near the Custer Gallatin National Forest boundary, where wildlife movement is desirable for genetic exchange between blocks of public lands, but may be restricted by permanent development such as highways, railroads, agricultural lands and residential areas.

**livestock** A type of domestic animal raised for commercial production purposes (for example, cattle).

**locally adapted species** Local seed collections or genetically appropriate cultivated varieties from local or regional environments similar to conditions that existed at the project site prior to disturbance.

**lotic ecosystems** Are running water habitat such as rivers, streams, and springs.

**low gradient, alluvial channels** Are low-gradient stream channels made up of loose sediments called alluvium. They are able to change their shape or course over time. Low-gradient alluvial channels are often associated with Rosgen stream channel types C and E.

**low severity fire/low severity fire regime** Fires that burn only the lowest vegetation layer, which may be composed of grasses, herbs, low shrubs, mosses, or lichens. In forests, woodlands, or savannas, low severity fires are generally surface fires and do not cause extensive mortality in the overstory vegetation.

**maintain** In reference to an ecological condition: To keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both (36 Code of Federal Regulations 219.19).

**management activity caused** See “activity caused.”

**management area** A land area identified within the plan area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 Code of Federal Regulations 219.19).

**management system** A timber management system includes even-aged stand and uneven-aged management (36 Code of Federal Regulations 219.19).

**matrix habitat** Within designated critical habitat for Canada lynx, includes non-boreal forest types such as hardwood forests, dry coniferous forest, grasslands, shrublands, rock, water, and other landscape conditions that do not support snowshoe hares, but which occur between patches of boreal forest such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

**mean annual increment of growth** The total increment of increase in volume of a stand (standing crop plus thinning removals) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan (36 Code of Federal Regulations 219.19).

**mesic** A type of habitat that is moderately moist.

**minerals** The Forest Service defines three types of mineral (and energy) resources:

- *locatable minerals*: Commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones.
- *salable minerals*: Common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite.
- *leasable minerals*: Commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and solid leasable minerals on acquired lands.

**minimum impact suppression tactics** Guidelines for fire suppression and post-fire activities that use procedures, tools and equipment that are commensurate with the fire's potential or existing behavior and produce the least impact to the environment without compromising safety or the effectiveness of suppression efforts.

**mitigate** To avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

**mixed severity fire/mixed severity fire regime** A combination of nonlethal, low intensity to stand-replacing fire effects within the perimeter of a single fire, or across consecutive events. Mixed-severity fire regimes give rise to unique patch dynamics and ecosystem responses.

**monitoring** A systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships (36 Code of Federal Regulations 219.19).

**motorized route** A National Forest System road or trail that is designated for motorized use on a motor vehicle use map pursuant to 36 Code of Federal Regulations 212.51

**multiple use** The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 ( 16 U.S.C. 528-531) (36 Code of Federal Regulations 219.19).

**municipal watershed** 36 CFR 251.9 authorizes the Chief of the Forest Service to enter into agreements with municipalities to restrict the use of National Forest System lands from which water is derived to protect the municipal water supplies (FSM 2542) within a given watershed area.

**national ambient air quality standards (NAAQS)** Are national air quality standards established by the U.S. Environmental Protection Agency (EPA) under authority of the Clean Air Act (CAA; 40 C.F.R. 50) to protect public health and public and ecosystem welfare.

**National Forest System** Includes national forests, national grasslands, and the National Tallgrass Prairie (36 Code of Federal Regulations 219.19 and 219.62).

**national forest scenic byway** The Chief of the Forest Service can designate routes traversing National Forest System lands as national forest scenic byways.

**National Wild and Scenic Rivers System** was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

**National Wilderness Preservation System** The Wilderness Act, signed into law in 1964, created the National Wilderness Preservation System and recognized wilderness as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.

**native species** An organism that was historically or is present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate introduction into that ecosystem. An organism’s presence and evolution (adaptation) in an area are determined by climate, soil, and other biotic and abiotic factors (36 Code of Federal Regulations 219.19).

**natural range of variation** The variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. The natural range of variation is a tool for assessing the ecological integrity and does not necessarily constitute a management target or desired condition. The natural range of variation can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

**nonfunctional condition** Are wetland or riparian conditions that clearly are not providing adequate vegetation, landform, or woody material to dissipate stream energy associated with moderately high flows, and thus are not reducing erosion, improving water quality, etc.

**no-surface-occupancy stipulation** A leaseable mineral leasing stipulation that prohibits occupancy or disturbance on all or part of a lease surface in order to protect special values or uses. Lessees may develop the oil and gas or geothermal resources under leases restricted by this stipulation through use of directional drilling from sites outside the no surface occupancy area.

**noxious weed** Is a regulatory term defined through Federal and individual State statutes. A noxious weed is defined by Montana Code Annotated (MCA 7-22-2101) as, “any exotic plant species established or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities”. A noxious weed is defined by South Dakota Code (chapter 38-22, article 12:62:02:01) as “a weed which the commission has designated as sufficiently detrimental to the state to warrant enforcement of control measures.” Noxious weeds are invasive plants are capable of successfully expanding their populations into new ecosystems beyond their natural range and can create lasting impacts to native plant communities. Impacts can be exacerbated by fire, native pests, weather events, human actions, and environmental change.

**nurse plant** Is a plant that creates an environment that is less severe for young seedlings growing underneath it or that promotes conditions for recovery.

**objective (OBJ)** A concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Also see chapter 1.

**old growth forests** Are ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function. For the purposes of this document, old growth forests are defined specifically as forests that meet the minimum criteria established for the Northern Region of the Forest Service (Green et al. 2011).

**old growth habitat** A community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multi-storied crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate. Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest (Green et al. 2011).

**open and unclaimed or unoccupied lands** This term is trademark of the treaties negotiated in the 1850s. The term applied to public domain lands held by the United States that had not been fenced or claimed through a land settlement act. Today “open and unclaimed lands” applies to lands remaining in the public domain (for the purposes of hunting, gathering foods, and grazing livestock or trapping). The courts have ruled that National Forest System lands reserved from the public domain are open, unclaimed, or unoccupied land, and as such the term applies to reserved treaty rights on National Forest System land.

**outfitting/outfitter guide** To rent on, or deliver to, National Forest System lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment (36 Code of Federal Regulations 251.51).

**outstandingly remarkable values (ORVs)** Within the Wild and Scenic Rivers Act, categories of scenery, recreation, geology, fisheries, wildlife, historic/ cultural, or other similar values.

**perennial** A stream that flows continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

**permit (special use)** A use authorization which provides permission, without conveying an interest in land, to occupy and use National Forest System land or facilities for specified purposes, and which is both revocable and terminable (36 Code of Federal Regulations 251.51).

**permitted grazing** Authorizes livestock use on National Forest system lands. Authorizing permits include grazing permits for commercial livestock production purposes, outfitter/guide special-use permits with associated pack animals, or other special-use permits.

**persistence** Continued existence.

**plan** A document, or set of documents, that provides management direction for an administrative unit of the National Forest System developed under the requirements of the 2012 Planning Rule or a prior planning rule (36 Code of Federal Regulations 219.19). Also see “forest plan.”

**plan area** The National Forest System lands covered by a forest plan (36 Code of Federal Regulations 219.19).

**planned wildland fire** See prescribed burn or prescribed fire.

**plant and animal community** A naturally occurring assemblage of plant and animal species living within a defined area or habitat (36 Code of Federal Regulations 219.19).

**potential vegetation type/potential vegetation group** An assemblage of habitat types on the basis of similar biophysical environments, such as climate, hydrology, slope and soil characteristics. This biophysical environment influences the vegetation characteristics and ecosystem processes that occur. The vegetation communities and conditions that would develop over time given no major natural or human disturbances (the climax plant community) would be similar within a particular potential vegetation type classification. See “habitat type.”

**prevention** With respect to invasive species management, prevention measures include a wide range of actions and activities to reduce or eliminate the chance of an invasive species entering or becoming established in a particular area. Preventative activities can include projects for education and awareness as well as more traditional prevention activities such as vehicle/equipment cleaning, boat inspections, or native plant restoration plantings. Restoration activities typically prevent invasive species infestations by improving site resilience, and reducing or eliminating the conditions on a site that may facilitate or promote invasive species establishment.

**prevention of significant deterioration (PSD)** Is an Environmental Protection Agency (EPA) program that applies to new major sources or major modifications of existing sources of air pollutants in areas that meet the national ambient air quality standards (NAAQS). PSD does not prevent sources from increasing emission but is designed to protect public and ecosystem, health, and welfare, to preserve, protect, and enhance the air quality in class I areas such as National Parks and class I wilderness areas, to protect economic growth, and to ensure that any decision to permit an increase in air pollution undergoes careful evaluation and consideration which includes State and Federal air regulatory agencies, land management agencies, and the general public.

**prescribed burn or prescribed fire** A fire ignited via management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements (where applicable) must be met, prior to ignition. [NWCG]

**primary conservation area** An area identified in the Greater Yellowstone Ecosystem GBCS to be managed as a source area for the grizzly bear population, where continuous occupancy by grizzly bears would be maintained. Habitat within the PCA receives the most stringent protection. The Primary Conservation Area is the same geographic area as the Greater Yellowstone Ecosystem Grizzly Bear Recovery Zone identified in the Grizzly Bear Recovery Plan (USDI 1993) prior to de-listing of the Yellowstone grizzly bear population in 2017.

**primary rangelands** Are those areas that produce forage and that are near water sources where primary grazing activity occurs

**productivity** The capacity of National Forest System lands and their ecological systems to provide the various renewable resources (such as timber) in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term (36 Code of Federal Regulations 219.19).



**project** An organized effort to achieve an outcome on National Forest System lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 Code of Federal Regulations 219.19).

**projected timber sale quantity (PTSQ)** Is a subset of the projected wood sale quantity and is an estimate of the quantity of timber expected to be sold during the plan period. The volume in the projected timber sale quantity is the volume that meets utilization standards.

**projected wood sale quantity (PWSQ)** Is an estimate of the volume of all timber and other wood products that is expected to be sold during the plan period from expected harvests for any purpose (except salvage harvest or sanitation harvest) on all lands in the plan area. The projected wood sale quantity includes all woody material likely to be sold from these harvests whether or not the woody material meets the utilization standards.

**proper functioning condition** For riparian areas have adequate vegetation, landform, or woody material present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; capture sediment and aid floodplain development; improve floodwater retention and ground-water recharge; develop root masses that stabilize streambanks against erosion, and maintain channel characteristics. Proper functioning condition for groundwater dependent ecosystems (i.e., seeps, springs, wetlands, shorelines) have adequate vegetation, landform, or debris present to: dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize islands and shoreline features against cutting action; restrict water percolation; develop diverse ponding characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; A wetland or riparian area in proper functioning condition will, in turn, provide associated values, such as fish and wildlife habitat, recreation opportunities; and support greater ecological diversity.

**proposed action** A project, activity, or action that a Federal agency aims to implement or undertake, and which is the subject of an environmental analysis. Proposed action is a specific term defined under the National Environmental Policy Act.

**proposed species** A type of animal or plant that is proposed by the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service, through the *Federal Register* to be listed for protection under Section 4 of the Endangered Species Act (36 Code of Federal Regulations 219.19).

**Pryor Mountain Wild Horse Range** The combination of Pryor Mountain agency and private rangelands authorized for use by wild horses. Not to be confused with “wild horse range” (see definition below) which is a special designation pertaining to only the BLM portion of the Pryor Mountain Wild Horse Range.

**Pryor Mountain Wild Horse Territory** Means the National Forest System lands identified as having been used by a wild horse herd as its habitat in 1971 at the time of the passage of the Wild Free Roaming Horse and Burro Act (P.L. 92-195) (December 15, 1971).

**public involvement** A process designed to broaden the information base upon which agency decisions are made. The process involves informing the public about Forest Service activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

**rangelands** Are land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem. If plants are introduced, they are managed similarly. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, marshes, and wet meadows (Society for Range Management 1999).

**rangeland health** Is the degree to which the integrity of the soil, vegetation and ecological processes are sustained.

**range improvements** Are any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, or provide habitat for livestock and wildlife (Society for Range Management 1999).

**rapid response** With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), rapid responses are defined as the quick and immediate actions taken to eradicate, control, or contain infestations that must be completed within a relatively short time to maximize the biological and economic effectiveness against the targeted invasive species. Depending on the risk of the targeted invasive species, rapid response actions may be supported by an emergency situation determination and emergency considerations would include the geographic extent of the infestation, distance from other known infestations, mobility and rate of spread of the invasive species, threat level and potential impacts, and available treatments.

**reclamation** Is the restoration of a site or resource to a desired condition to achieve management objectives or stated goals (Society for Range Management 1999).

**recommended wilderness** An area that has been determined to meet the criteria to be designated as wilderness and is proposed in this land management plan by the Forest Supervisor to be recommended to Congress for inclusion into the National Wilderness Preservation System.

**recovery** As pertains to the Endangered Species Act, is the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 Code of Federal Regulations 219.19). This definition is for the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219 and Land Management Planning Handbook 1909.12, and with respect to threatened or endangered species (36 Code of Federal Regulations 219.19).

**recreation** The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations. Also see “sustainable recreation” (36 Code of Federal Regulations 219.19).

**recreation event** Any temporary event, such as race, run, ride, or tournament, which is organized, using National Forest lands and facilities, and which an entrance fee is required to participate. Event proponents may be for-profit or not-for-profit, individuals, or organizations.

**recreation opportunity spectrum** Is the system that the Forest Service describes an opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include nonmotorized, motorized, developed, and dispersed recreation on land, water, and in the air (36 Code of Federal Regulations 219.19). The six classes are the following:

- *Primitive*: The primitive recreational opportunity spectrum setting is large, remote, wild, and predominately unmodified landscapes. There is no motorized activity and little probability of

seeing other people. Primitive recreational opportunity spectrum settings are managed for quiet solitude away from roads, people, and development. There few, if any facilities or developments. Most of the primitive recreation opportunity spectrum settings coincide with designated wilderness boundaries.

- *Semi-primitive nonmotorized*: The semi-primitive nonmotorized recreation opportunity spectrum settings include areas of the Forest managed for nonmotorized use. Mountain bikes and other mechanized equipment are often present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area. These settings are not as vast or remote as the primitive recreational opportunity spectrum settings, but offer opportunities for exploration, challenge, and self-reliance.
- *Semi-primitive motorized*: The semi-primitive motorized recreation opportunity spectrum settings area(s) of the Forests are managed for backcountry motorized use on designated routes. Routes are designed for off highway vehicles and other high clearance vehicles. This setting offers visitors motorized opportunities for exploration, challenge, and self-reliance. Mountain bikes and other mechanized equipment are also sometimes present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area or providing portals to adjacent areas of primitive, or semi-primitive, nonmotorized areas.
- *Roaded natural*: The roaded natural setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. System roads also provide easy access to adjacent in semi-primitive motorize, semi-primitive nonmotorized and primitive areas.
- *Rural*: The rural settings represent the most developed recreation sites and modified natural settings Facilities are designed primarily for user comfort and convenience.
- *Urban*: The urban setting is characterized by a substantially developed environment although the background may have natural appearing elements. Highly developed ski areas and resorts are examples of an urban setting on National Forest System lands.

**recreation setting** The social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Also see “recreation opportunity” (36 Code of Federal Regulations 219.19).

**recreational river** Within the Wild and Scenic River act, a tentative classification of those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and may have undergone some impoundments or diversion in the past.

**refugia** Specific site locations and habitat conditions that support populations of organisms that are limited to small fragments of their geographic range. Climate change refugia refers to areas relatively buffered from contemporary climate change over time that enable persistence of valued physical, ecological, and socio-cultural resources.

**regeneration** The renewal of a forest, whether by natural or artificial means. This term may also refer to a tree crop itself.

**research natural area** A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. However, under unusual circumstances, deliberate

manipulation may be utilized to maintain the unique feature that the research natural area was established to protect. (FSM 4063.05)

**reserved treaty rights** The reserved rights doctrine holds that any rights that are not specifically addressed in a treaty are reserved to the Tribe. In other words, treaties outline the specific rights that the Tribes gave up, not those that they retained. The courts have consistently interpreted treaties in this fashion, beginning with *United States v. Winans*, 198 U.S. 371, 25 S. Ct. 662, 49 L. Ed. 1089 (1905), in which the U.S. Supreme Court ruled that a treaty is "not a grant of rights to the Indians, but a grant of rights from them." Any right not explicitly extinguished by a treaty or a Federal statute is considered to be "reserved" to the Tribe.

**resilience (ecological)** The capacity of a (plant or animal) community or ecosystem to maintain or regain normal function and development following disturbance.

**resistance** The ability of a community to avoid alteration of its present state by a disturbance (Helms 1998)

**responsible official** The official with the authority and responsibility to oversee the planning process and to approve a plan, plan amendment, and plan revision. (36 Code of Federal Regulations 219.19 and 219.62).

**restore** To renew by the process of restoration (36 Code of Federal Regulations 219.19).

**restoration** The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed; ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions (36 Code of Federal Regulations 219.19).

**retardant** In terms of wildfire suppression, retardant is a substance intended to slow the rate of fire spread by cooling and coating fuels, depleting the fire of oxygen, and slowing the rate of fuel combustion as the retardant's inorganic salts change how fuels burn.

**revegetation** Is establishing or re-establishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation) (Society for Range Management 1999).

**riparian area** A three-dimensional ecotone of interaction that include terrestrial and aquatic ecosystems that extend into the groundwater, above the canopy, and outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths (36 Code of Federal Regulations 219.19).

**riparian ecosystem** A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. A riparian ecosystem is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

**riparian management zone (RMZ)** A portion, or portions, of the watershed where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines (36 Code of Federal Regulations 219.19). RMZ widths are defined as follows:

- *Category 1, fish-bearing streams:* riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to a distance equal to the

height of two site-potential trees, or 300-feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.

- *Category 2, permanently flowing nonfish bearing streams:* riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150-feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
- *Category 3, ponds, lakes, reservoirs, and wetlands greater than 1 acre:* riparian habitat conservation areas consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the distance of the height of one site-potential tree, or 150-feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond, or lake, whichever is greatest.
- *Category 4, Seasonally flowing or intermittent streams, wetlands less than 1 acre, and lands identified as landslide prone:* This category includes features with high variability in size and site-specific characteristics. At a minimum, the riparian habitat conservation area must include: (1) the intermittent stream channel and the area to the top of the inner gorge; (2) the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation; (3) for priority watersheds as identified in appendix E, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest; or (4) for watersheds not identified as priority watersheds, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one-half site potential tree, or 50-feet slope distance, whichever is greater.

**riparian wildlife habitat** An environment that occurs along lakes, rivers, streams, springs, and seeps where the vegetation and microclimate are influenced by year-round or seasonal water and associated high water tables. Plant and animal species in these areas are more productive and diverse than on nearby uplands, making these areas very important to many wildlife species.

**risk** A combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences (36 Code of Federal Regulations 219.19).

**road** A motor vehicle route more than 50-inches wide, unless identified and managed as a trail. (36 Code of Federal Regulations 212.1, FS Manual 7705):

- *Decommissioned:* the stabilization and restoration of an unneeded road to a more natural state (36 Code of Federal Regulations 212.1).
- *Forest road or trail:* a route wholly or partly within or adjacent to and serving the National Forest System that is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 Code of Federal Regulations 212.1—Definitions)
- *Maintenance level:* a term for the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (Forest Service Handbook 7709.59, 62.32)

Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent

damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.

Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.

Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.

Level 5: Assigned to roads that provide a high degree of user comfort and convenience.

- *National Forest System*: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 Code of Federal Regulations 212.1)
- *Temporary*: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 Code of Federal Regulations 212.1).

**roadless** The 2001 Roadless Rule establishes prohibitions on road construction, road reconstruction, and timber harvesting on 58.5 million acres of inventoried roadless areas on National Forest System lands. The intent of the 2001 Roadless Rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management.

**Rosgen channel type classification** Is a widely applied river classification system based on common patterns of channel morphology. The classification scheme assigns a channel type based on channel slope, width to depth ratio, bed material, entrenchment ratio and sinuosity. This method can be used to collect the raw data to assess mechanisms for predicting channel stability, erosion risk, aggradation, channel enlargement, sediment transport capacity, degradation, lateral or longitudinal migration, and hydraulic relations. As an example, Rosgen channel types C and E are low gradient streams that are very sensitive to disturbance and can be rapidly adjusted and converted to other stream types in relatively short time periods. Rosgen C and E systems rely on well-developed floodplains with dense vegetation (often sedges and rushes) that helps stabilize the banks.

**sacred site** Executive Order 13007 Indian Sacred Sites defines an Indian Sacred Site as “any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian Tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.”

**savanna** A lowland grassland with a scattering of trees. Widely scattered trees are present with less than 10% tree canopy cover and the understory is dominated by grass and/or shrubs.

**scenery management system** Is a systematic approach to inventory, analyze, manage and monitor the scenic resources. This system provides a process to determine the relative value and importance of the national forest scenery and assist in establishing overall resource objectives.

**scenic character** Is a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place. Scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity. (2012 Planning Rule and 36

Code of Federal Regulations 219.19) The scenic character description incorporates the visible natural physical and biological features, as well the context and ways the scenery is viewed and experienced. A scenic character description also includes associations that viewers have with that scenery based upon visible historic and cultural elements and significant and broadly relevant special places.

**scenic integrity objectives** Serve as thresholds of allowable visual dominance by landscape modifications over the valued scenic character and describe the amount of allowable deviation from the desired scenic character. They describe the degree to which a landscape is visually perceived to be complete when compared to the scenic character of that area.

- *Very high:* Landscapes where the valued landscape character “is” intact with minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level. These landscapes generally provide for ecological change only.
- *High:* Landscapes in which the valued landscape character “appear” intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident. Management activities do not dominate the landscape.
- *Moderate:* Landscapes in which the valued landscape character “appears slightly altered”. Noticeable deviations must remain visually subordinate to the landscape character being viewed. Management activities are subordinate to the attributes described within the described scenic character of the area.
- *Low:* Landscapes in which the valued landscape character “appears altered”. Deviations begin to dominate the landscape character being viewed but borrow valued attributes such as size, shape, edge effect and pattern of natural openings vegetation type changes or architectural styles outside of the landscape being viewed. Management activities are visible and sometimes dominant features on the landscape.
- *Very low:* Landscape where the valued landscape character “appears heavily altered”. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as sized, shape, edge effect and pattern of natural opening, vegetative type changes or architectural styles within or outside of the landscape being viewed. Management activities are visible and dominate the views of the overall landscape.

**scenic river** Within the Wild and Scenic River Act, a tentative classification of those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped but accessible in places by roads.

**scion** A detached living portion of a plant, such as a bud or shoot, often a branch tip, that is grafted onto the root-bearing part of another plant.

**secure habitat** An area with low levels of human disturbance or habitat that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance. The components of security habitat can include vegetation, topography, the size of the patches of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing of the disturbance. This general definition covers most uses of the term security habitat, except for elk and grizzly bear, which have specific definitions.

**secure habitat (big game)** Areas at least 0.5-mile away from motorized routes and at least 250 acres in size.

**secure habitat (grizzly bear)** Areas at least 0.31 mile (500 meters) away from motorized routes and at least 10 acres in size.

**sediment delivery** The delivery of sediment to a water body via overland flow, mass wasting, human activity, or some other means.

**sediment yield** The rate of transport of sediment by a stream, generally expressed in terms of tons/year, past a designated “accounting point” in a watershed.

**seral** A biotic community that is developmental; a transitory stage in an ecologic succession.

**seral/structural stage** A phase of development of an ecosystem in ecological succession from a disturbed, relatively unvegetated state to a complex, mature plant community.

**Shrub** Perennial, multi-stemmed woody plant that is usually less than 13 to 16 feet in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 16 feet or single-stemmed under certain environmental conditions.

**significant cave** A cave located on National Forest System lands, managed under authority of the Cave Resource Protection Act (CRPA), which has been determined to contain significant, biota, cultural, geologic, mineralogic or paleontologic, hydrologic, recreational, educational, scientific resources or opportunities.

**silviculture** The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values.

**site capability and potential** See “capability and potential.”

**site preparation** A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

**site productivity** The combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

**site potential tree** Is the average maximum height of the tallest dominant trees for a given site class.

**ski area** A site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and fees for ski rentals, for skiing instruction and trail passes for the use of permittee-maintained ski trails. A ski area may also include ancillary facilities directly related to the operation and support of skiing activities (36 Code of Federal Regulations 251.51).

**slash** The residue left on the ground after felling and other silvicultural operations, or that has accumulated there as a result of storms, fire, or natural pruning.

**slash piles** Woody residue that has been moved, either mechanically or by hand, into piles for burning.

**snag** A standing dead tree usually greater than 5 feet in height and 6 inches DBH.

**social sustainability** See “sustainability” (36 Code of Federal Regulations 219.19).

**special use authorization** A permit, term permit, lease, or easement which allows occupancy, use, rights, or privileges of National Forest System land (36 Code of Federal Regulations 251.51).



**species of conservation concern** A species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 Code of Federal Regulations 219.9(c)).

**soil function** Various processes that occur in the soil or at the soil surface and enable the soil to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

**soil-landscape** An area of land that exhibits either a repeating or continuous pattern of landscape attributes that are apparent both on the ground and on remotely sensed imagery and reflect underlying patterns of specific soil-forming factors: geology, terrain, and native plant community types. Each soil-landscape can be expected to react in a specified manner to management actions at a land management scale.

**soil productivity** The capacity of a soil to produce a certain yield of crops or other plants with a specified system of management. *Note:* Under extensive management inherent productivity equals soil productivity, unless the soil resource has been degraded.

**soil quality** The capacity of the soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health relative to inherent conditions prior to any activity caused soil disturbance.

**soil restoration** Management actions taken specifically to restore soil physical, chemical, or biological properties that have been degraded due to either management caused or natural disturbances.

**Source Water Protection Areas** The area delineated by a State or Tribe for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of a State or Tribal source water assessment and protection program (SWAP) approved by the Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)) (36 CFR §219.19) or any subsequent laws applicable to public water systems that provide water for human consumption.

**stand** A community of trees occupying a specific area and sufficiently uniform in canopy composition , age, and size class to be a distinguishable unit, forming a single management entity.

**standard (STD)** A mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. Also see chapter 1.

**stand-replacing fire** A fire that is lethal to most of the dominant above ground vegetation and substantially changes the vegetation structure. Stand-replacement fires may occur in forests, woodlands and savannas, annual grasslands, and shrublands. They may be crown fires or high severity surface fires or ground fires.

**state and transition models** State and transition model and concepts are typically captured in ecological site descriptions, provide decision-making tools for land managers, provide a means to represent the complex dynamics of rangeland ecosystems, and are effective communication tools. They provide extensive knowledge of existing and possible rangeland vegetation states, transitions, thresholds or other barriers to change, opportunities for management intervention, and what changes can occur through mismanagement. The vegetation types are called "states," and the processes that cause states to change from one to another are called "transitions." Where states are resistant to change, they are

called "steady states." An example of a steady state is where long-lived or otherwise dominant plants occur on a site. These steady-state plant communities change only as a result of such transitions as long periods of above-average moisture or drought, fire, an insect or disease outbreak, or human action. The site factors that impose this high level of stability on a site are called "thresholds."

**streambank alteration/disturbance** Streambanks that show signs of sloughing, dislodged stones or logs, and/or trampling from animals (does not include road crossings). Current-year alteration is discernible from previous years' alteration because of weathering effects of freeze/thaw cycles, rain events, and erosion by stream flow or vegetative regrowth. Types of alteration include shearing, trampling, and trailing.

**stressors** Factors that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime (36 Code of Federal Regulations 219.19). Also see "ecosystem stressor."

**structure** The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity. Also see "forest structure."

**succession/successional stage** A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as "seral," or "successional" stages.

**suitability of lands** A determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands. The terms suitable and suited and not suitable and not suited can be considered the same.

**sustainability** The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For purposes of this part, "ecological sustainability" refers to the capability of ecosystems to maintain ecological integrity; "economic sustainability" refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and "social sustainability" refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 Code of Federal Regulations 219.19).

**sustainable recreation** The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 Code of Federal Regulations 219.19).

**sustained yield limit** The amount of timber, meeting applicable utilization standards, "which can be removed from [a] forest annually in perpetuity on a sustained-yield basis" (National Forest Management Act at section 11, 16 United States Code 1611; 36 Code of Federal Regulations 219.11(d)(6)). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. Volume from salvage and sanitation timber harvest is not

included in calculating the sustained yield limit. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure.

**threatened species** A species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Threatened species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 223.102.

**thresholds (ecological)** Points in space and time at which one or more of the primary ecological processes responsible for maintaining the sustained equilibrium of the ecological state degrades beyond the point of self-repair. Examples of thresholds include: soil erosion and nutrient loss so severe that some plants cannot grow; invasion of a site by a plant that is so dominant that other plants cannot compete; and change in plant community structure—arrangement of plants on the site—so that fire, a naturally occurring event that directs ecosystem change, cannot occur or occurs in a more destructive way. In the plan area, there are some sites that have crossed a threshold where primary ecological processes have degraded beyond the point of self-repair where meeting desired conditions is unlikely since they are not easily reversed without significant inputs of resources. These areas largely originated from unmanaged activities in the late 1800s and early 1900s. Once an ecosystem crosses a threshold, it is generally very difficult to restore the original composition, structure and ecological processes by changes in management alone. Prohibitively expensive restoration measures (e.g., dam removal, plowing or soil modifications) would generally be necessary to restore degraded ecosystems.

**timber harvest** The removal of trees for wood fiber use and other multiple-use purposes (36 Code of Federal Regulations 219.19).

**timber production** The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 Code of Federal Regulations 219.19).

**topsoil lift** A specified depth (usually 6-inch increments) of surface mineral soil to be excavated separately from underlying subsoil and substrate materials and replaced as the surface soil layer during backfilling.

**total maximum daily load** Is a pollution budget and includes a calculation of the maximum amount of a pollutant that can occur in a waterbody and allocated the necessary reductions to one or more pollutant sources (metals, sediment, turbidity, etc.). A total maximum daily load serves as a planning tool and potential starting point for restoration or protection activities with the ultimate goal of attending or maintaining water quality standards.

**Traditional Cultural Property** A cultural resource that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The entity evaluated for eligibility for inclusion in the National Register of Historic Places must be a tangible property; that is, a district, site, building, structure, or object as defined in 36 CFR 64.4.

**trail** A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 Code of Federal Regulations 212.1).

**trail class** The prescribed scale of development for a trail, representing its intended design and management standards.

**treaty rights** Those rights or interests reserved in treaties for the use and benefit of Tribes. The nature and extent of treaty rights are defined in each treaty. Only Congress may abolish or modify treaties or treaty rights.

**Unmanned Aircraft System (UAS)** An aircraft used or intended to be used for flight in the air that has no onboard pilot. This includes all classes of airplanes, helicopters, airships and translational lift aircraft with control over 3 axes (FAA Interim Operational Approval Guidance 08-01-Unmanned Aircraft Systems Operations in the U.S. National Airspace System). In addition to the actual aircraft, a UAS also consists of the ground control station. Forest Service UAS operations will comply with FAA policy and/or regulations applicable to UAS flight operations (FSM 5705–Definitions).

**unplanned wildland fire** See “wildfire.”

**untrammelled** A term defined in the context of the Wilderness Act as an area where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem.

**values at risk** Highly valued resources and assets that are at risk of loss or degradation from wildfire. These can be natural values (e.g., watersheds, wildlife habitat, threatened or endangered plant species) and man-made values (e.g., communities, infrastructure, developed recreation sites).

**vegetation management** A process that changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this document, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads for example, and does not apply to unplanned wildland fire.

**viable population** A population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments. (36 Code of Federal Regulations 219.19)

**viewshed** Is the visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travel ways.

**visual magnitude** Is a project-specific tool for assessing and describing the relative visibility and potential effects of a landscape modification, such as a timber harvest unit or construction of a road or facility, on the scenery. It takes into account the distance, slope and aspect relative to an observer, as well as the number of times an area is seen from given observation platforms.

**visual absorption capability** Is a classification system used to denote the relative ability of a landscape to accept human alternations without loss of scenic quality.

**warm season grass** Warm-season grasses (i.e., blue grama, buffalograss, bluestems) grow during warmer periods when temperatures are 70 to 95 °F. Warm-season grasses use soil moisture more efficiently than cool-season species and often can withstand drought conditions. These grasses have different leaf cellular structures that cause them to be more fibrous, contain more lignin, and be less digestible. Therefore, livestock normally prefer cool season grasses if they are at the same growth stage as warm season species. However, because cool season grasses often enter the reproductive period at about the time that warm season grasses begin growth, livestock normally seek out this new growth from warm-season species. A warm season species generally exhibit the C4 photosynthetic pathway; also known as a C4 plant.

**watershed** A region or land area drained by a single stream, river, or drainage network; a drainage basin. (36 Code of Federal Regulations 219.19).

**watershed condition** The state of a watershed based on physical and biogeochemical characteristics and processes (36 Code of Federal Regulations 219.19).

**wetland** Is an area that under normal circumstances has hydrophilic vegetation, hydric soils, and wetland hydrology.

**whole tree logging** A logging system where trees to be harvested are cut off at the base and the entire tree hauled to the landing to be processed into logs.

**wild horse range** Means an area specifically designated from a Forest Service wild horse territory or BLM herd management area to be managed principally, but not necessarily exclusively, for wild horses (36 CFR 222.60 (b)(14) and 43 CFR 4710.3-2). Nationally, there are four specific “ranges” thus far, one of which is the BLM portion of the Pryor Mountain Wild Horse Range.

**wild river** Within the Wild and Scenic River Act, a tentative classification of those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.

**wild and scenic river** A river designated by Congress as part of the National Wild and Scenic Rivers System, which was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

**wilderness** An area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 United States Code 1131–1136).

**wildfire** A naturally-caused wildland fire (for example, lightning) or human-caused fire, and considered an emergency management situation.

**wildland fire** Any nonstructure fire that occurs in the wildland. There are two types of wildland fire: unplanned (natural or human-caused wildfire) and planned (prescribed fire).

**wildland-urban interface** A term as defined by the Healthy Forest Restoration Act § 101. It is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the wildland-urban interface is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA, for full text see HFRA § 101.)

**winter range** The portion of the overall area a species inhabits where the majority of individuals are found from the first heavy snowfall to spring green-up, or during a site-specific period of winter. In the Rocky Mountains (generally including the montane portion of the plan area), winter range areas tend to have a relatively low amount of snow cover.

**woody draws** See “green ash draws”.

**xeric** Environment or habitat containing little moisture; very dry.